The OIL WEEKLY

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THE WEEK'S NEWS INTERPRETED

JUN 25 19

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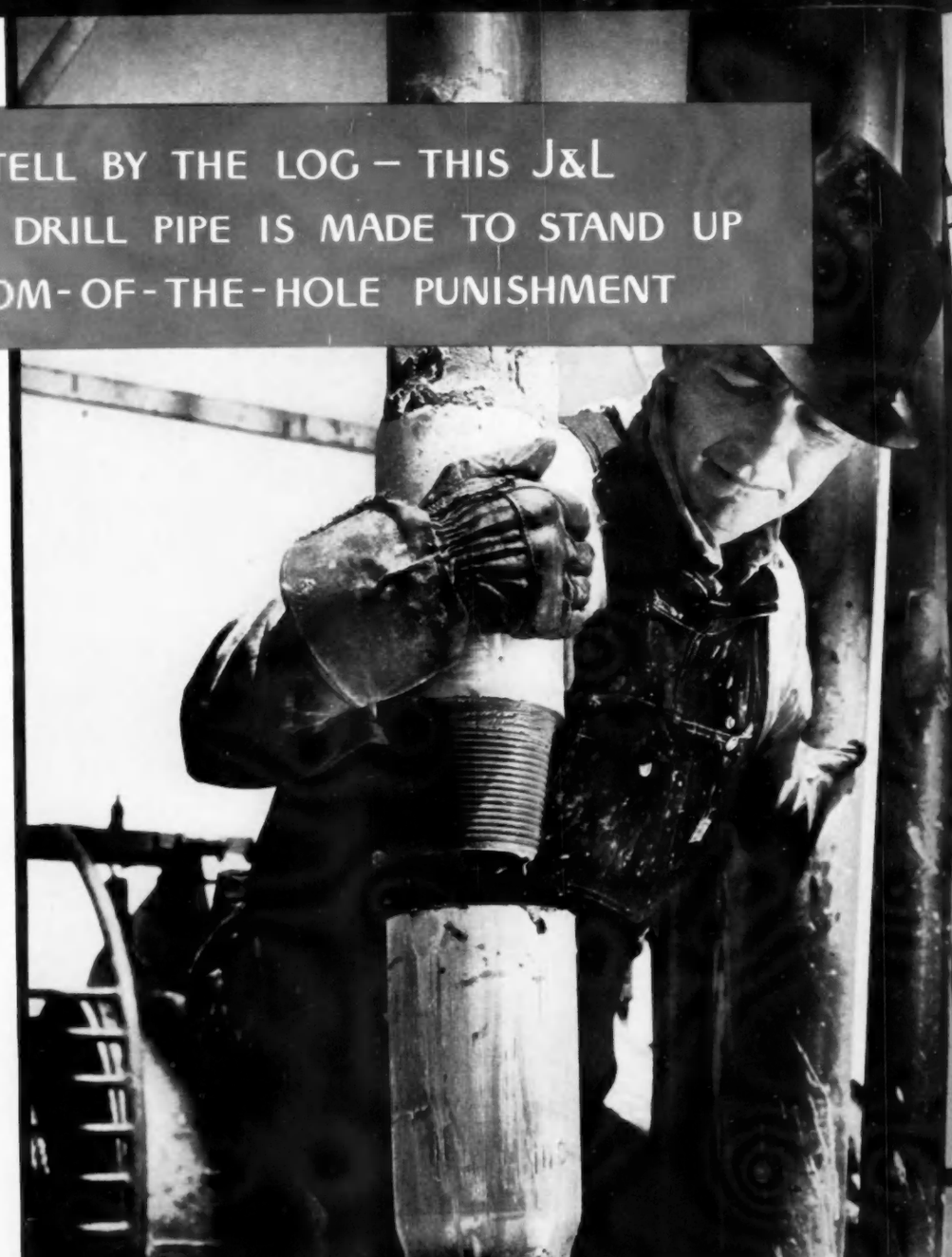

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Partner

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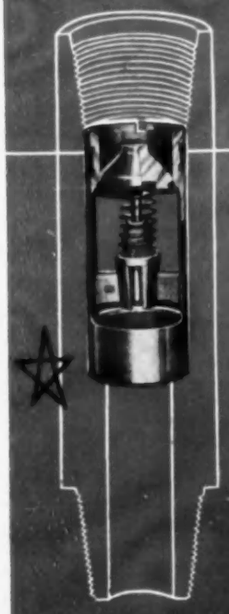

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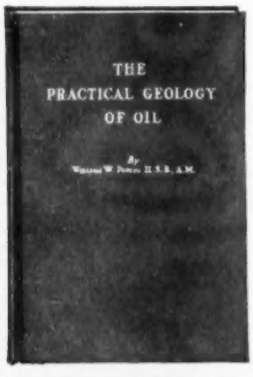

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Looking Ahead

WITH THE EDITOR

U. S. MOTOR PLANTS are demonstrating a high output capacity. One and a third billion dollars worth of automobiles and trucks produced in the first five months of 1940 testify to the capacity of American industrial enterprise to organize men, machines and engineering skill, to coordinate supply and distribution for rapid, intensive production.

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The ability of these auto plants to produce such large volumes is being counted upon should the nation become involved in warfare. However, it should be borne in mind that every individual machine has been allocated, designed and employed for a specialized purpose. Few if any of the machines could be turned to producing anything else without virtual reconstruction. To switch from producing passenger automobiles to airplanes, for instance, would in general be accomplished as swiftly and as well by building new plants as by conversion of existing facilities.

However, it is fortunate that the automobile industry is shaped around quick changes, ruthlessly forced upon it year after year by the drive of competition. For this reason, these plants and their managers are uniquely adaptable to new and difficult production jobs. When plants know what is needed, they can produce the job. Complete new plants have been built in 75 working days.

But before the automobile industry can be expected to participate in fulfilling the needs of any emergency that may arise—such as airplanes, etc.—it must be informed as to the exact specifications of the product desired. Then, if left alone to work out its own problems, these motor plants can build surprisingly large quantities of mechanized units of all types after a comparatively short period of time devoted to retooling or new plant construction.

MANY OTHER PLANTS, including oil field equipment manufacturing shops, provide the United States with additional high capacities. But, like automobile plants, these would have to retool in many instances to devote themselves to manufacture of products not now being made. This would take time. But, if informed as to the exact specifications of the product desired, they can build a surprisingly large quantity. The first consideration in a war emergency, then, is for every plant to be given definite blue prints of the products it is expected to make.

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THE OIL WEEKLY

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The Oil Man's Calendar

JUNE 29	American Petroleum Institute, Illinois Basin Chapter, Evansville, Ind.
SEPT. 9–13	American Chemical Society, Detroit.
18–20	National Petroleum Association, Atlantic City, N. J.
OCT. 7–10	American Gas Association, Atlantic City, N. J.
7–11	National Safety Congress and Exposition, Chicago.
16–18	Independent Petroleum Association of America, Dallas.
31–Nov. 2	Texas Mid-Continent Oil & Gas Association, Ft. Worth.
NOV. 11–15	American Petroleum Institute, Chicago.
1941 APR. 2–4	American Association of Petroleum Geologists, Houston.
24–25	National Petroleum Association, Semi-Annual Meeting, Cleveland.

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FIG. 428

LARKIN FIG. 428

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THE OIL WEEKLY

JUNE 24, 1940

VOLUME 98 NUMBER 3

The Week's Panorama

EUROPEAN war developments continue to shift American oil markets about. Recent developments for the most part appear to further aggravate the declining export situation, but also include conditions that may bring increased demand for the western hemisphere from Great Britain.

• • • Entrance of Italy into the conflict removed that country from the list of oil-importing nations. With the Mediterranean Sea outlets at Suez and Gibraltar closed, it no longer is possible for transoceanic oil to reach Italian ports. Italy has been a large purchaser of petroleum products in recent months, buying large quantities from the United States and Mexico.

• • • Italy's declaration of war also has disrupted traffic to neutral nations located near Mediterranean shores. British and French authorities have ceased issuing naiverts for vessels carrying shipments destined for Greece, Rumania, Bulgaria, Turkey, Italy, Spain, Portugal, Hungary, Yugoslavia and Switzerland. This paralyzes a large part of normal Mediterranean shipping.

• • • With Italy in a position to disrupt English shipments through the Mediterranean, Great Britain is expected to turn to South and North America for more of its petroleum supplies. Although the route from its holdings in the Near East around Cape Horn is still available, it is 50 percent longer than the Mediterranean run, and considerably greater than to the United States or Venezuela. Reports indicate more than 250,000 barrels a day have been moving from the Near East and Rumania to France and England.

• • • Still another factor that probably will encourage Great Britain to buy North and South American petroleum products is the loss of French refineries. Heretofore, much of the Allies' supply has been refined on French soil. Occupation of Northern France by the German army removed 30 percent of the country's refining plants, and bombing reports indicate plants in the southern part of France have been military targets. Therefore, whether France gives up its European territory to Germany or not, it appears to have little refining facilities left intact. Since the British Isles do not have large refineries, refined products will be required in larger quantities than previously. North and South America have an abundance of refining capacity, and therefore would be a logical source of supply. France, before the war, was estimated to have a refining capacity of about 180,000 barrels of crude oil daily.

• • • Stopping of Near East oil shipments to the Allied countries is causing California operators to wonder if they are to be influenced by the rapidly shifting import centers. It is conceivable that oil supplies of the Near East might be diverted to Japan, China and other Far East consuming centers. These markets have been held by California and the Netherlands East Indies for years. During May, California shipped 60,400 barrels daily to Japan, and 76,300 barrels a day to other Pacific Ocean foreign ports. Loss of any or all of these outlets would result in further increases in surface storage unless production was curtailed.

• • • Sinking of 525 vessels comprising 1,824,300 tons (up to June 12) has in itself created quite a gap in normal consumption, particularly in bunker fuel. Thus far the tonnage sunk during the war has averaged 5206 tons daily, which compares to a loss of 18,969 tons per day during the first nine months of the first World War.

In addition, vessels of both belligerents and neutrals are tied up in ports providing degrees of safety. For instance, it is estimated nearly a tenth of Italy's total tonnage is tied up in ports of the Western Hemisphere. Many vessels of other flags likewise are tied to wharves in neutral harbors. Not a few of these are tankers.

• • • Setting up a seven-man board to "mobilize" the United States Department of Interior on a national defense basis has drawn the criticism of the petroleum industry as having hidden motives to place oil under federal control. Particularly disturbing to oil men was Secretary of the Interior Ickes' letter announcing the board, which referred to "enforcement of laws relating to the production, distribution and marketing of oil supplies."

Oil operators want to know what laws give Ickes jurisdiction over distribution and marketing. It was generally interpreted that he was referring to the Connally hot oil act so far as production was concerned.

Attention Focused On Oil's

Dr. Robert E. Wilson appointed oil representative on Defense Advisory Commission under Stettinius

WASHINGTON, D. C.—Cooperation of the oil industry with the United States national defense activities was invited June 20, when President Roosevelt announced the appointment of Dr. Robert E. Wilson, president of Pan-American Petroleum and Transport Company, as national defense head for the petroleum industry.

Dr. Wilson will join the president's advisory commission to the Council of National Defense this week. Already serving on the commission as representatives of several other leading industries are a number of internationally known business executives who have left important company posts to work in Washington during the emergency.

As the industry's defense head, he will work under the direct supervision of Edward R. Stettinius, who recently resigned as chairman of the board of United States Steel Corporation to take full charge of obtaining and handling all raw materials under the United States defense program.

Dr. Wilson will have a complete staff of his own, and will be directly charged with every phase of the oil industry in its relation to defense plans.

Several other possible plans for participation of the oil industry in the national defense program are said to have been considered by President Roosevelt, but investigations reportedly showed the appointment of Dr. Wilson as being the only one having the approval of all branches of the petroleum industry.

Anticipated Problems

A major phase of the oil problem which is facing the National Defense Council is understood to be the question of transportation between the Gulf and the Eastern Seaboard, and the safeguarding of large refining and producing centers. Of particular concern are said to be the numerous oil fields, as

DR. ROBERT E. WILSON

has been appointed as oil's representative on the Industrial Advisory Commission to the Council of National Defense.

Dr. Wilson, born in Beaver Falls, Penna., on March 19, 1893, is both a scientist and executive. He received the degree of Ph. B. from the College of Wooster in 1914 and the degree of Sc. D. from the same institution in 1931. He received the degree of B. S. from the Massachusetts Institute of Technology in 1916.

He worked in the research laboratory of General Electric Company in 1916 and was research associate in applied chemistry at Massachusetts Institute of Technology, 1916-1917. For the next few years he was successively assistant director and director and associate professor in chemical engineering.

From 1922-28 he was assistant director of research of Standard Oil Company of Indiana and was assistant to the vice president in charge of

[*Continued on page 50*]

Part In National Defense

Vulnerability of Gulf Coast refining centers and coastwise transportation problems are of concern

well as refineries, adjacent to the Gulf of Mexico.

Regions near the Gulf of Mexico produce the majority of the United States' crude production and this territory also is one of the major refining centers. Much of this crude oil and petroleum products ordinarily moves to the Eastern Seaboard via tankers, which at present are somewhat difficult to lease and in case of war this shipping method would be likely enemy targets.

Administration officials also are concerned with oil's unfavorable market situation, particularly in view of the heavy storage stocks which are overhanging the industry and threatening its price stability and which are being aggravated by the loss of considerable export business due to the war in Europe. In their view, a reduction of stocks to a point where more orderly operations can be maintained, with oil moving from the well to consumer without long stop-overs in storage, would be preferable to further dangerous increases in above-ground supplies. While, in the event of an emergency, above-ground stocks might prove highly valuable, the belief in Washington is that the national defense program will not reach the point where large quantities of oil will be required for some time and that, in the meantime, it would be better if there was nothing to threaten the price situation and stability of the industry.

So far as the oil industry is concerned, it is said, no other serious problems have been raised so far. It is recognized that a supply of crude oil adequate for any need can be secured overnight by removal of proration restrictions in the leading producing states, that refinery output can be stepped up just as easily and, if needed, additional capacity constructed with little delay.

It is understood that among the proposals for handling oil problems in the national defense program considered by President Roosevelt was one from Secretary of the Interior Harold L. Ickes for establishment of a three-man board of which he would be a member. But intimations are said to have come from various quarters in the oil industry that Ickes' past relations with the industry would not make for full cooperation, due largely to his known views favoring federal control of petroleum.

Consequently, the President is thought to have turned to proposals for representation from only the oil industry. Two such plans are said to have developed, one of which would have provided for a representative from the major firms and another from the independent group. The other suggestion was for the appointment of a single representative who would be satisfactory to both large and small companies. With the selection of Dr. Wilson, the President chose the latter procedure.

WASHINGTON, D. C.—In connection with the part which oil would play in national defense, while it is recognized in Washington that production of crude oil and refinery output could be stepped up instantly to take care of any anticipated needs, the vulnerable position of the major refining centers along the Gulf, Atlantic and Pacific coasts, and what is considered a lack of adequate transportation facilities between Gulf points and the Atlantic seaboard, are regarded as serious matters.

It is considered probable that these matters will be given immediate attention of the advisory defense commission. It is expected that the defense program will include provision for the guarding of the refineries from possible enemy raids, in common with other strategic points throughout the country.

The transportation question, however, is another matter. Some tankers are under construction and more are planned, but it is felt in official quarters that there should be at least one alternate route of transportation. The logical thing, it is thought, would be a pipe line from the Southwest to the major Eastern points, and there is a possibility that this will receive serious attention in the near future.

As to the protection of important refining centers, this is a matter which has frequently been taken to Washington. In the past there seemed to be, to say the least, an uncertainty on the part of both the army and the navy departments as to which department's job such protection is. The army said that it is the navy's job and the navy said it is the army's job. Finally the job has been allocated to the army.

A refinery is regarded as a munitions plant in time of war and as such enemy forces would have open season on refineries.

Request has been made for anti-aircraft protection of a more or less permanent type. Such protection, it is now thought in Washington, will be provided shortly. Formation of a National Guard anti-aircraft regiment has been sought in Texas, thus far to no avail, but affairs of the past few weeks may change that.

While, so far as is known, no thought has been given to the possibility of a joint gasoline pipe line from the Gulf Coast to Atlantic Seaboard, such an idea holds possibilities. Under the anti-trust laws it is regarded as feasible that two companies could join forces in building a gasoline line to the Atlantic Seaboard, but if more than two sought to join in the line such action would be in violation of law.

Pipe lines engaged in interstate commerce are common carriers, and therefore are subject to regulation by the Interstate Commerce Commission. They could be required to transport products of independent refiners. At present, however, there is no gasoline line from Gulf points to the Atlantic Seaboard and the Gulf Coast independent refineries all have their plants located on the Gulf. There are no independent refineries on the Atlantic Seaboard.

[Follow on next page]

National Defense . . .

[See preceding pages]

Oil men doubt justification of government laying emergency pipe line from Gulf ports to East Coast

HOUSTON, Texas.—Reports from Washington, D. C., that the transportation of petroleum between Gulf ports and the Atlantic seaboard was considered one of the principal problems in coordinating this industry with the United States' national defense program were received here with interest. Houston ships a larger quantity of petroleum products to the Atlantic seaboard than any other Gulf port.

Statements that administration circles thought there should be at least one alternate route of transportation, and that a pipe line from the Southwest to the East Coast was considered the most logical adjunctive to normal movements via tankers, created considerable comment.

It was stated that a government-owned pipe line would be no less vulnerable than a privately owned one; that a government-owned line, built under the stimulus of a war emergency, would be something else when war ended; that the capacity of existing pipe line systems from Southwestern United States to the Middle West and East were not being fully utilized at present, and that existing facilities could be stepped up, if necessary, around 35 percent within 90 days by looping and adding pump stations.

Economics and Expediency

Viewing the subject in its broad aspects, some pipe line men were of the opinion that any government-sponsored pipe line building at present from the Southwest to the North and East would not be justifiable strictly as an economic proposition, as evidenced by the fact that the industry already has continuously expanded its facilities as increases in demand have made such expansion practicable or necessary.

There was much doubt, moreover, as to justification for any hurried-up pipe line building because of conditions which might arise from a military emergency. Any temporary or emergency needs that could not be met by tanker shipments or by existing pipe lines could be handled, it was pointed out, by railroad tank car and even by tank truck.

Curtail Civilian Driving?

An interesting fundamental point was brought up by one commentator, who declared that a very obvious step for the government to take if at any time it has reason to be concerned over supplying petroleum products to the military and to war-related industries is the same step that all Europe's belligerents took early in the war. That is to restrict civilian consumption to any extent needed to assure ample supplies where needed in the national interest. Such restrictions almost certainly would not have to be as severe as those imposed upon the Europeans. Any metropolitan or industrial district in the United States consumes enough gasoline for pleasure driving on a Sunday afternoon or a holiday to go a long way in running and oiling the factories and fueling and lubricating the commercial vehicles and planes in the area, it was commented.

As to the adequacy or inadequacy of existing pipe line systems for supplying militarily strategic points and districts embodying industries essential to the national defense, the snap judgment of pipe line men was that the existing pipe lines necessarily lead to such districts, having been built obviously to areas where oil is refined and consumed.

Pipe Lines vs. Tankers

The economic impracticability of moving petroleum from the Gulf Coast to the Atlantic Seaboard as a normal procedure was said to be attested by the fact that no oil currently is moving all the way across that expanse of land by pipe line, although some Illinois oil within the past several months began to move eastward, through a line that formerly conveyed Texas oil from the East Coast westward into the interior.

Currently, there are not even any posted tariffs on oil from the Southwest via pipe line to the East Coast. Formerly, a rate of 76 cents a barrel was in effect from Oklahoma points to Bayonne, New Jersey. And the trunk line tariff between Oklahoma and the Gulf Coast was 25 cents a barrel. Thus if oil had moved from the Gulf Coast via Oklahoma to the New York area by pipe line, it would have done so at a cost of $1.01 a barrel.

Such oil could not have competed with oil moved by ships, even with exceptionally high tanker rates in effect. At the levels that they reached several weeks ago, which were the highest for recent years, the tanker rates from the Gulf to North Atlantic ports were: 56 cents a barrel on gasoline, 62 cents on light fuel oils and light crude, and 71 cents on heavy crude and heavy fuel oil. Thus even at those rates, shipment by water was more economical than movement by pipe line would have been.

Since the beginning of June, tanker rates have come down materially, those from the Gulf to North Atlantic points being now within a range of 40 to 50 cents a barrel for practically all oils, or at levels around one-half of those that would be involved in movement by pipe line across the country.

Furthermore, it would be even more difficult for oil to move by pipe line in competition with waterborne oil under more normal conditions in the tanker market. At

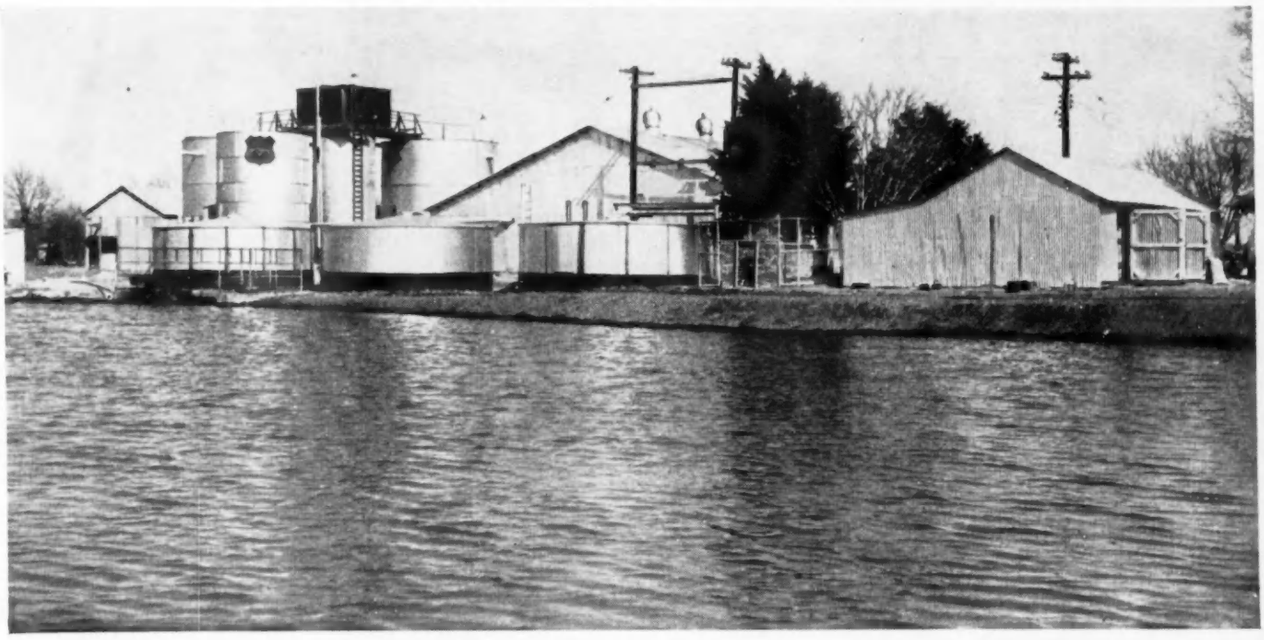
[Continued on page 50]

Tanker Rates

(Approximate rates last paid, cents per barrel, Gulf to North Atlantic—Not East of New York)

PRODUCT	1939		1940			
	June 20	Dec. 19	*Feb. 6	†June 4	June 11	June 18
Heavy Crude & Fuel Oil, 10-19.9 grav.	20	52	60	71	57	45
Light Crude Oil, 30 grav. or lighter	18.5	46	53	62	50	40
Gasoline	17	57	67	55	54	47
Kerosene	18	60	70	58	57	50
No. 2 Fuel Oil	19	63	73	61	60	53

* Peak prices for refined oils for recent years.
† Peak prices for crude oils for recent years.



Phillips Petroleum Company's water flood station near Coody's Bluff, Oklahoma.

Water Flood Restores Profit To Stripper Operations

By JOHN C. ALBRIGHT

THOSE who are adept at dramatizing the so-called waste (?) of oil in the United States completely ignore secondary recovery methods, which is one of the most important forms of conservation, and one which is advancing rapidly. Reputable producers of petroleum, and their names are legion, are always eager to squeeze the last drop of oil from a reservoir without causing waste, and while secondary projects have been successful for many years advanced knowledge promises to make them even more successful in the future. One of the list of such methods, flooding a producing sand with water stands high in ultimate yield of oil. Records are available to show that a scientifically conducted water flood will recover more oil within four or five years than has been produced from many a sand during its entire previous life.

The Nowata area of northeastern Oklahoma is an example of the importance of water flooding methods. The production of the county has nearly doubled since 1934.[1] The annual figures on oil produced in Nowata County in recent years prove the effect of this method:

Year	Barrels Produced
1934	2,254,340
1935	2,374,810
1936	3,179,115
1937	3,454,831
1938	4,396,273
1939	4,351,122

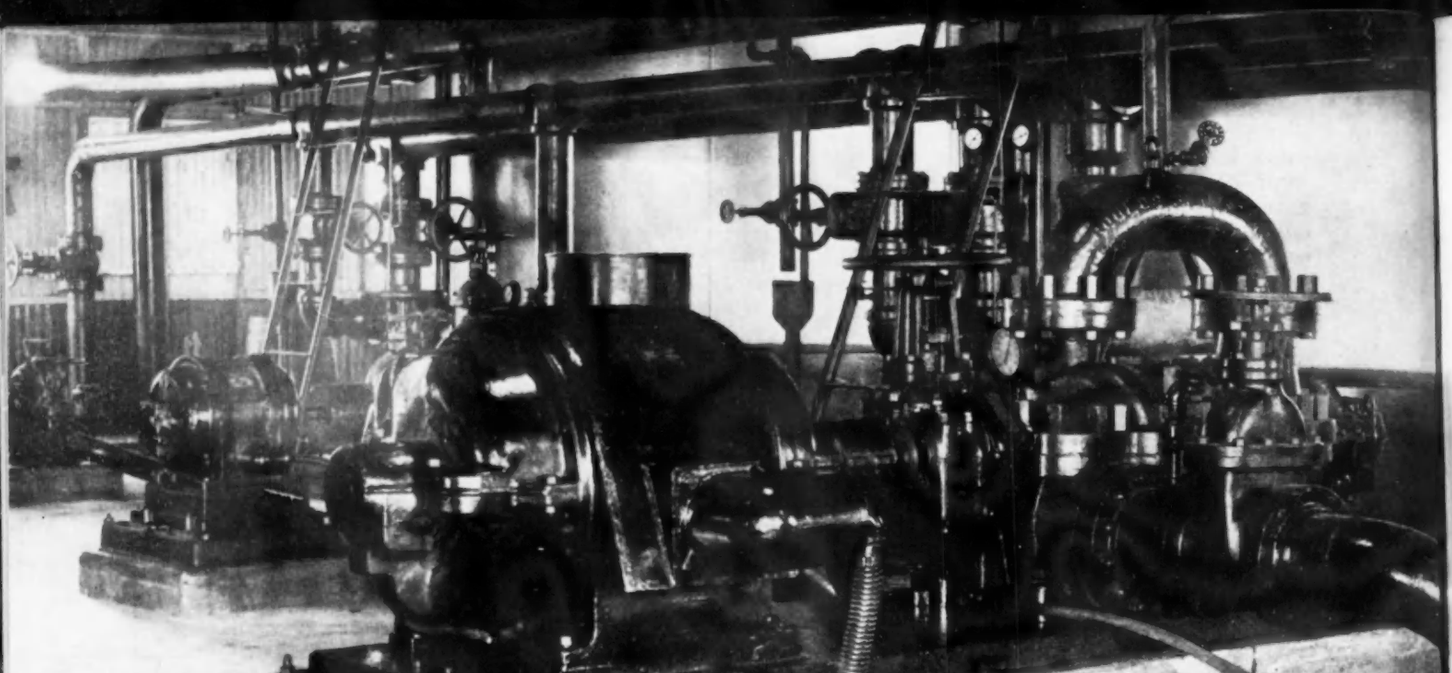
It was in 1936 that the first big results from water flooding were obtained in Nowata County, and in 1938 and 1939 production was nearly double that of 1934. Water flooding now is being applied to approximately 5000 acres in the county. It is estimated that average recoveries may increase 4000 barrels per acre as a result, which is sufficient to pay for the expenses of scientifically conducting the work (from $1100 to $1700 per acre).

Typical among the Nowata County water-flood projects proving conservation of oil can be practiced successfully in a field where the original wells had become strippers with an output of possibly a barrel or two daily, is Phillips Petroleum Company's flood near Coody's Bluff. Efficient practice is to abandon old wells, redrill the property and put in new equipment. That is what Phillips Petroleum Company has done.

First Core Drilled

The project was begun by consolidating the tracts and laying out a pattern, called the five-spot, and core-drilling on pattern locations to obtain sand samples for labora-

[1]Independent Petroleum Association of America Monthly for June, 1940.



Main injection pump room, which is powered by electricity, at Phillips' Coody's Bluff project.

tory analysis to determine the quantity of residual oil, sand thickness, permeability, porosity and the position of breaks showing as shale partings. Because the area had been subdivided into 10- and 20-acre blocks, spacing of wells was placed on 330-foot locations. Otherwise, if the 160-acre tracts had been left intact, the spacing might have been on 660-foot locations to reduce costs. After the laboratory work was completed, all original producing wells, not falling reasonably within the flood pattern, were plugged. When plugging an old well, a bridge was set in the top of the sand sealed with neat cement pumped down the pipe, after which the old casing was cut and pulled while a heavy mud filled the bore hole to the ground level.

The new wells, both water-input and oil producers, are drilled with a motorized rotary string of tools built upon a heavy-duty, dual-rear-axle truck. This machine is operated with gasoline as fuel with the motor - under - the - hood used with conventional truck drive when moving cross country, but when in power take-off, drives a pair of mud pumps when drilling, and a hydraulic pump for raising and lowering a derrick type mast. This mast is an integral part of the unit and is folded forward over the truck traveling. A second motor, on the bed of the truck, and independent of the first is used to operate the drawworks and rotary table, handle casing, bail out the hole, run a string of tubing and rods and swab if necessary.

With this machine, it is practicable to drill a hole as deep as 3000 feet, and it is possible to move on to a location, begin drilling and completing a well at the depth required at Coody's Bluff in 48 hours. The time consumed in tearing down this rig after completing a producer or water input well is about 4 hours, and the time elapsed between moving over a stake until rotating is begun is equally as short.

When the first block was being prepared for water flooding, a spudder was used until the motorized rotary could be moved in, and all wells, whether input or oil producers were completed with a string of 4½-inch O.D. slip-joint welded casing cemented in the top of the Bartlesville sand to shut off top water and to prevent migration of input water and escape of oil. Drilling was begun in 25-26n-16e, in June 1937 with 63 producers and 80 water wells completed in the flood pattern. After the pattern had been completed, approximately 40,000,000 cubic feet of gas was pumped through the water system into the sand to raise the reservoir pressure from a vacuum of 8 inches to 15 pounds. As the properties had been operated under a variety of methods, including a high vacuum, drainage channels had apparently been set up in the sand body, and the injected gas was expected to block off with minute bubbles fingering of water from an input well to a producer.

Drill Through Sand

The method practiced at this time, when drilling a water-input well is to rotate a 6-inch hole from the surface through the Bartlesville several feet into the shales below. After the hole has been completed, a light shot of glycerine, varying from 1 to 1½ quarts, is tamped with water and exploded to open the sand face and immediately bailed clean. A string of 1½-inch seamless tubing is run in the well with a simple burlap packer on the lower joint, which is pulled tight against the walls to expand and 10 sacks of neat cement lowered to form an impervious plug. The remainder of the hole is filled with a heavy mud to the ground surface for sealing off upper formations and to protect the metal from corrosion.

The top of the tubing is equipped with a tee, in the side outlet of which is placed the connections

necessary for attaching control gates and a water meter. The top of the tee is fitted with a nipple and a gate valve so that reversal of flow may be obtained when it is necessary to remove accumulation of foreign matter from the face of the sand. The fittings at the ground surface of an input well are simplified as much as practicable, and those above the surface are protected by a frost box filled with saw dust.

The input wells are drilled by the same method and in the same manner as water-input units with a similar pocket below the sand to retain sediment and grains of sand falling from the formation. Either 1½- or 2-inch seamless tubing is used for the producing string, also equipped at the lower end with an expanded burlap packer after which from 5 to 10 sacks of neat cement are lowered for the shut-off. Alongside the string of tubing, there is also placed a string of ½-inch pipe, extending to the bottom of the larger string and included in the packer and cementing. Both strings extend only to the top of the sand and are installed without a gas anchor. The tubing is equipped at the lower end with a common working barrel so that the well may be pumped when required.

The purpose of the ½-inch pipe is to vent gas from the hole when it is driven from the sand by the pressure of input water traveling through the formation as a steady drive. It may, and has been used to control the volume of oil produced by flowing from a given well if and when water should show indications of passing through open channels or fractures in the sand.

Surface Fittings

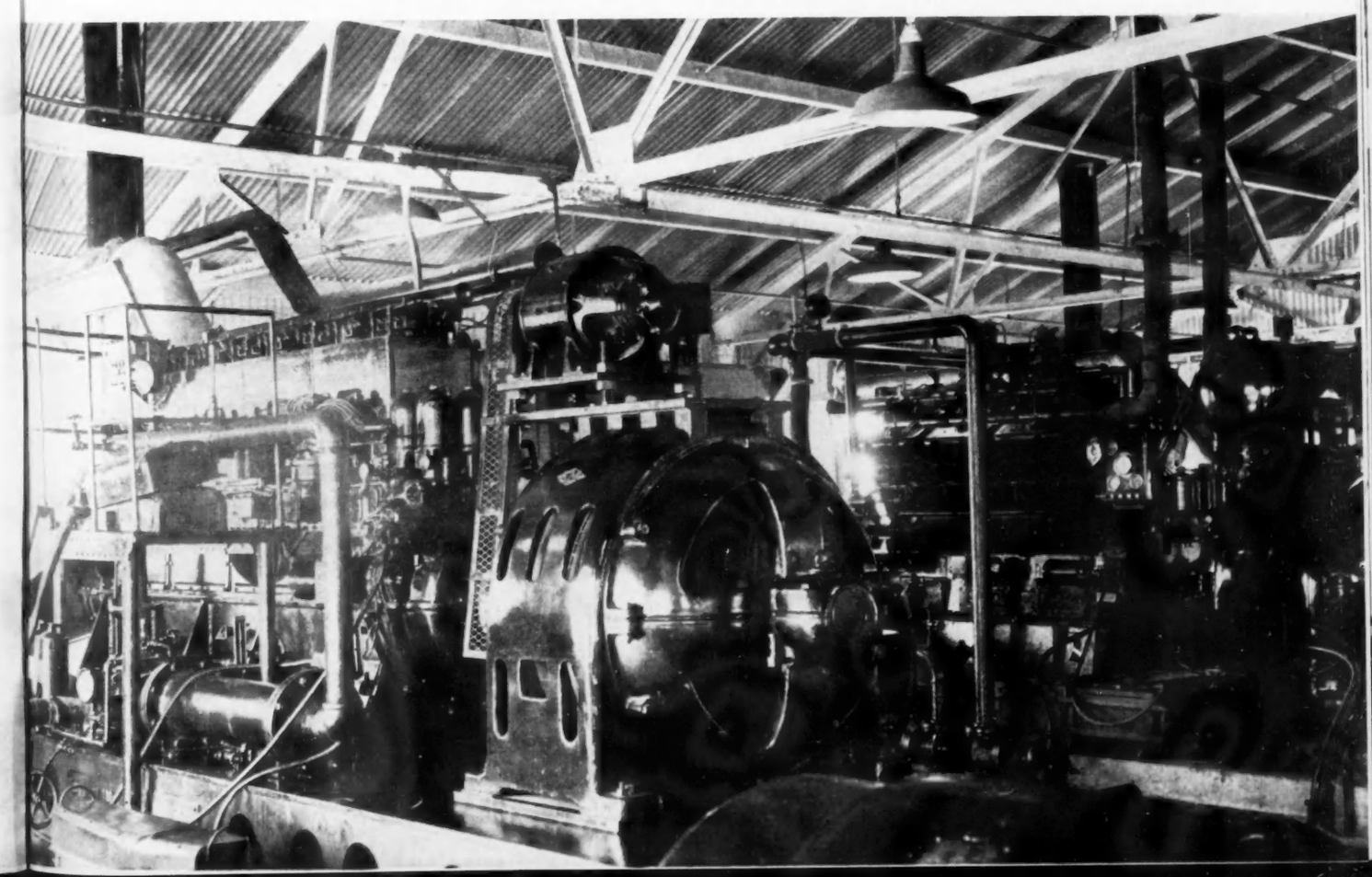
The top end of each pipe is equipped with a running tee, either plugged or fitted with a gate valve. The flow line on the larger pipe extends from the side outlet of this tee with a convenient number of nipples, a swing check, control gates and a union. About 30 inches of these connections run horizontal to a riser coming from the buried lead line. The riser is fitted with a tee near the vertical midsection to which the ½-inch pipe is connected by a reducing fitting. The top of the riser is equipped with a bull-headed tee so one outlet opening may be used with a gate to bleed the well when inspecting its performance.

If the wells require pumping, or when production was started with mechanical lifting, the working barrel is equipped by running both standing and traveling valves and a string of sucker rods. The usual type of stuffing box is attached to the tubing head for packing the polish rod. Small, light, electric-motor-driven pumping units are set on concrete pads at the well, as in most cases, the wells are individuals, and must be operated with different length stroke and stroke speed. When three wells in line produce equal volumes of fluid, they are sometimes operated with a single unit with back-cranking to the two opposite jacks pulled with surface rods in a direct horizontal line. The units are so well balanced that in most instances, the power required amounts to as little as 2 horsepower at the polish rod. When the wells are pumped with back crank attachments, a single 5-horsepower motor on the central unit is sufficiently large to pull them at any desired speed or length of stroke.

Three Sources of Water Supply

Water, obviously, is required in adequate volume to flood any property, and three sources are available for production. The first two consist of lifting water from the Verdigris river and by airlift from

Gas engines drive the generators used to power pumping of both water and oil.



Drilling machine used on Phillips water flood lease.

several shallow wells on the property. The third source is the water produced with the oil, either that passed through the sand from the input units, or connate. A large earthern reservoir was built by excavating a wide depression, or slough, completed with a low dirt dam to retain water held in reserve. Water pumped from the river channel empties from the pipe line into this reservoir as does the water lifted from the shallow wells.

The water produced with the oil flows from stock tank batteries through a gathering system to a series of skimmers. The first consisting of a large vertical steel tank equipped with baffles, wood barriers, siphons and strainers. The partly conditioned salt water flows through a flume to a concrete vat with several partitions so that, when the water finally passes to the reservoir, not even a rainbow of oil shows on the surface. A wier is placed at the outlet of the flume where it discharges the salt water into the concrete separator so that the volume can be computed when checking the performance of the project.

Raw water is picked up from the reservoir by single-stage motor-driven centrifugal pumps and discharged into a chemical contacting and treating tank where hydrated lime and ferric sulphate are added in the correct proportions to effect adequate treating. This water is placed in one of several settling tanks to permit precipitation of floc, and after drawing off the sludge, the water is pumped through three sand-filled filters. These filters are equipped with a manifold which permits the flow through the bed of filtering material from top to bottom. When necessary, the time on the line being determined by past performance, the vessels are backwashed to remove sediment and foreign matter on the top of the bed by reversing the flow of water and passing it through in quantities sufficiently great to obtain the desired turbulence of the filtering material.

Algae growth is controlled by chlorinating a filter each time it is placed back on the line after backwashing. An ordinary steel oil drum is set near the filter charge pumps with a connection at the lower end which is attached to the suction line of the centrifugal unit handling the water. The drum is filled approximately to the 45-gallon line with water and about 4½ pounds of high available calcium chloride added. This is thoroughly dissolved and about 15 gallons, or approximately 1½ pounds of chlorine, are pumped into the filter immediately after it is put on stream. This amount of chlorine has been found to be effective in controlling algae and preventing its propagation while the water flows through the flood distribution system and in the sand itself.

The pH of the water used in various floods in Nowata County varies from 6.8 to 7.0 in produced salt water, to 7.5 to 8.4 in the water returned to the sand through the distribution and pressure systems. Corrosion, as such, has not been observed in any of the equipment that may be traced directly to saline waters or other sources. Only a few scattered cases have been reported which indicate deterioration of equipment, and those have been definitely attributed to electrolysis. The principal point where this has been found is in

the case and impeller of the flood pump, and which is being arrested with an insulating sleeve in the discharge line, and a grounding brush working on an extension pin of the impeller shaft.

Central Generating Plant

As all the properties of Phillips Petroleum Company in the water-flood project are electrified, a central generating station was built to produce power to operate the water-flood pumps and the pumping units in the surrouding leases. This plant is equipped with three individual gas engines, two of which are vertical cylinder, eights, the larger having a rating of 400 horsepower and the smaller 350 horsepower. The third engine is a V type machine used largely as a stand-by or when a greater than normal amount of current is required. Each engine is attached directly to the individual generator.

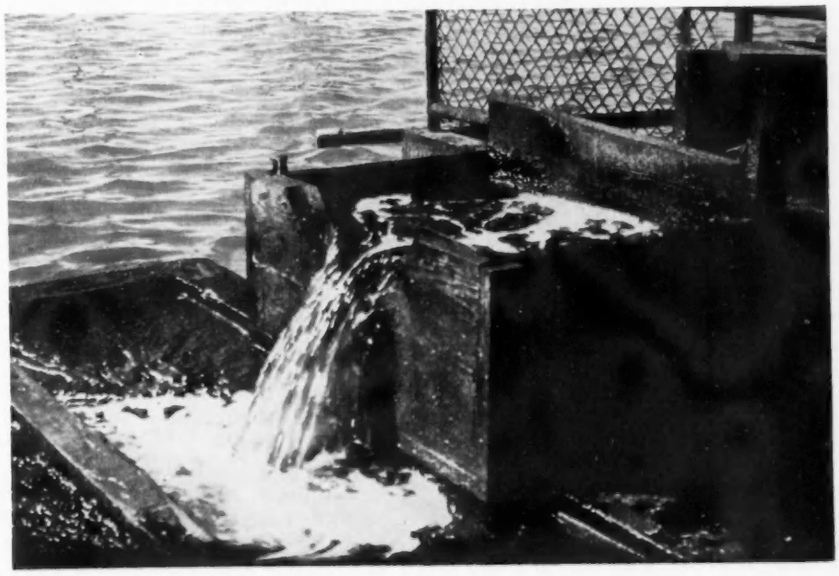
Current is transformed to 440 volts for transmission over the producing properties and transmitted by wiring on standard poles. Where the individual wells are located in ploughed fields, heavy metal jacketed cable is run from a convenient pole and buried below plough depth, coming to the surface at the control panel, then buried to the concrete pad at the motor mounting.

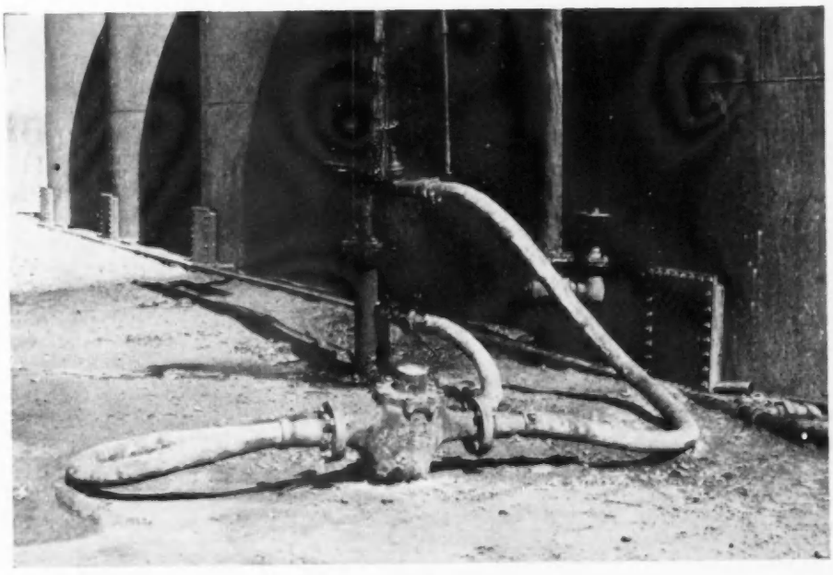
The principal pump that handles the normal load of flood water has a capacity of 30,000 barrels per day at a discharge pressure of 600 pounds and is driven by a 2200-volt, 300-horsepower motor, the shaft of each being connected together with a flexible coupling. This pump takes suction directly from the outlet of the filters, with three balancing tanks of 1000-barrel capacity in the line so that the intake of the pump is continually operating under flooded suction. Orifice meters on the main discharge header record the quantity of water discharged to the field distribution system on 24-hour charts. The ratio of fresh water to salt water pumped to the sand is from 2:5 to 1:0, and is gradually becoming less as more water is produced from the sand with the oil than formerly.

Having been able to treat this salt water so it may be pumped back into the formation without deleterious effects upon either the pipe lines or sand body has eliminated a disposal problem. Unless unforeseen complications arise, the produced salt water will be continued in greater quantities until the leases are brought to a complete flood stage, and there will never be a time when more salt water is produced than being pumped to the formation, so fresh water will continue to be required as make-up.

Central Tank Batteries

On the properties that are being produced with pumping units, both oil and water flow through the lead lines to central receiving batteries, each being equipped with adequate separators. The water on these properties flow to the main pumping plant through gravity lines which have adequate capacity to handle the expected quantity of produced salt water. On recently completed projects which have just





Wier-box, above, in which water returned from producing wells is measured. Occasionally the water production is metered with the portable instrument shown at left.

Pumping unit on Phillips' water flood property. Electric current carried across cultivated field through buried conduit.

begun to produce, the wells are equipped for flowing both water and oil. These wells, however, have been tubed so that pumping units may be installed when and if required later in the life of the property.

Central flow tank and stock tank batteries have been located at strategic points on the subdivisions with automatic oil and water separators placed to receive the produced fluids. These separators are similar in outside appearance to the ordinary type of oil and gas separators, but no baffles or mist extractors are included. The line entering the separator, to which all of the individual lead lines are attached, is connected to a flanged opening in the shell of the separator at about the vertical midsection, and opposite from the stock tank battery. A manhole opposite the fluid inlet contains a ball float which is calibrated to sink in oil and float on salt water. Oil from the separator leaves through a 2-inch line attached to the shell of the separator about 2 feet from the head, and the water outlet line is connected in a similar manner near the base. A third line in the top head of the vessel carries away any gas which may be produced, but a loop back to the oil outlet line is used to build pressure on the separator.

A balanced valve in each of the outlet lines is connected to the lever of the ball float so that, when the water level is down the pressure is removed from the separator until sufficient fluid enters the vessel to bring the float back to about the level. As the fluid level builds up, the oil and gas line is automatically shut off until a pressure sufficient to drive the water from the separator into the gathering system has been built up. This apparatus is automatic and requires only an occasional inspection. The water is measured by a ½-inch meter in the outlet line bypass so that the quantity a group of wells is making can be quickly obtained.

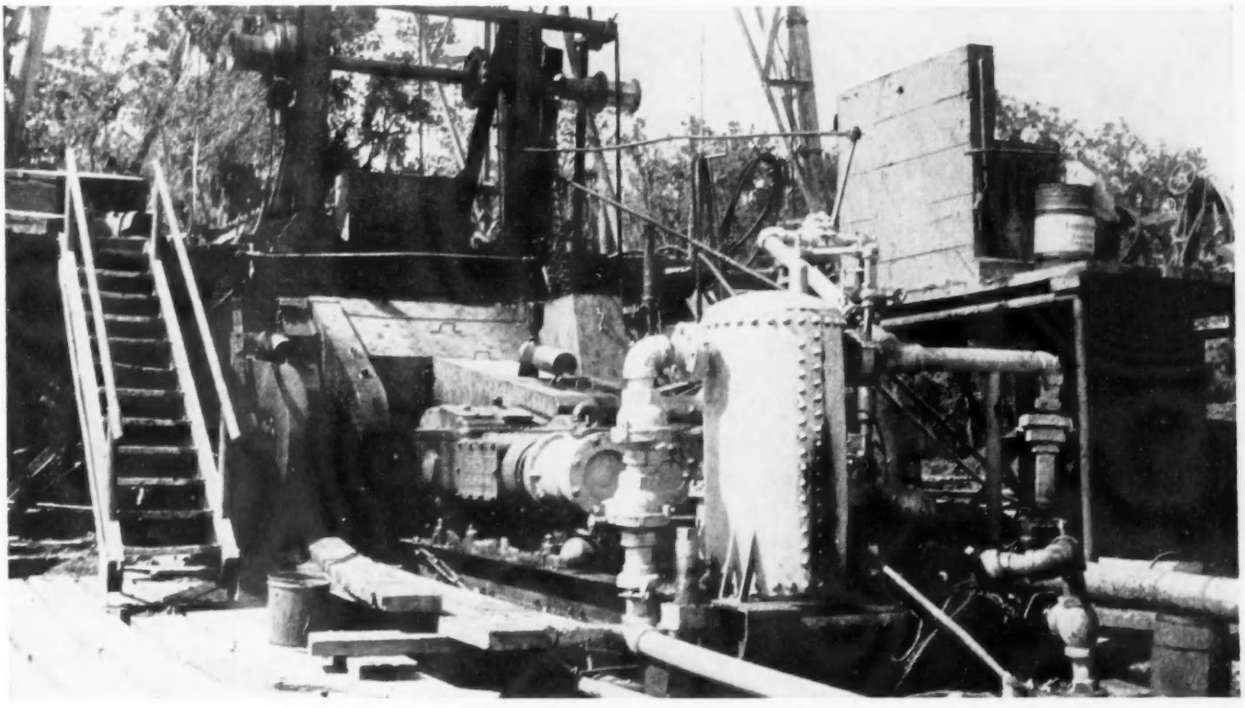
Sand Conditions

The Bartlesville sand at Coody's Bluff has a greater permeability on the eastern edge than on the west, gradually lowering progressively. The thickness varies from 10 to 30 feet, but the oil content is fairly constant. Numerous shale parting are encountered in this sand, but appear to be lenticular in shape so that the entire body of sand may be flooded from top to bottom without coning and without extensive fingering. The quanity of water that is injected into the individual well is controlled by adjusting the flow at the meter at the well head so that no one well will take a greater amount of water at the expense of others.

If and when a producer shows by excessive water production that water is passing through channels in the sand directly to the well instead of advancing as a steady wall drive, the offending input is pinched in, or the producer is controlled as to output. Little difficulty has been encountered by a deformed water wall, and the wells showing up as such have been drilled near a pronounced fissure in the sand.

The cost of drilling and equipping a water flood in this area will vary as to the project. When casing is used the cost is greater than if the wells are completed with small tubing on a cemented packer. And the quantity of oil recovered from a given sand will also vary, depending upon many variables, some of which are beyond the control of the operators. But over the entire area, a project may be drilled and equipped for approximately $1500.00 per acre, including the generating station and the water plant. If these were constructed with sufficient capacity to take care of additions, connected floods installed at a later date can be completed at a reduced cost.

The quantity of oil that may be recovered from a given sand obviously depends upon the quantity of residual oil in the sand at the time the flood was begun. Methods in use prior to the beginning of a waterflood usually depleted the sand of its gas and attendant lifting power, and may recover as much as 30 to 35 percent of the amount of oil originally in the sand when the wells were first drilled. The percentage of oil recovered from the residual quantity in the sand at the beginning of this type of secondary recovery may also vary, but when a flood has been started, the wall of water should be continued at a constant pressure and input rate. Otherwise, the water may flatten out in the vertical section, and when started again could cause excessive trapping so that the oil may never be brought to the surface.



Drawworks set beneath one edge of derrick floor adds to working room on the derrick floor

Drawworks Shift Improves Rig Floor Conditions

By ELTON STERRETT, Staff Writer

WITH derrick floor space restricted by the four corners of the steel structure itself, any change which adds working room subtracts from hazards and makes for improved control of the well.

Quintana Petroleum Company, drilling in the South Thompson's field, obtains greater derrick floor space by removing the drawworks entirely from the floor, setting the unit on a special foundation at ground level, with the skids firmly tied to buried anchorages through paired cables and turnbuckles. Such a move allows slightly greater angularity to the live line, with added space wherein to rack pipe—available for this use being the area normally occupied by the outer casing of the drawworks and the long chain housing covering the rotary drive.

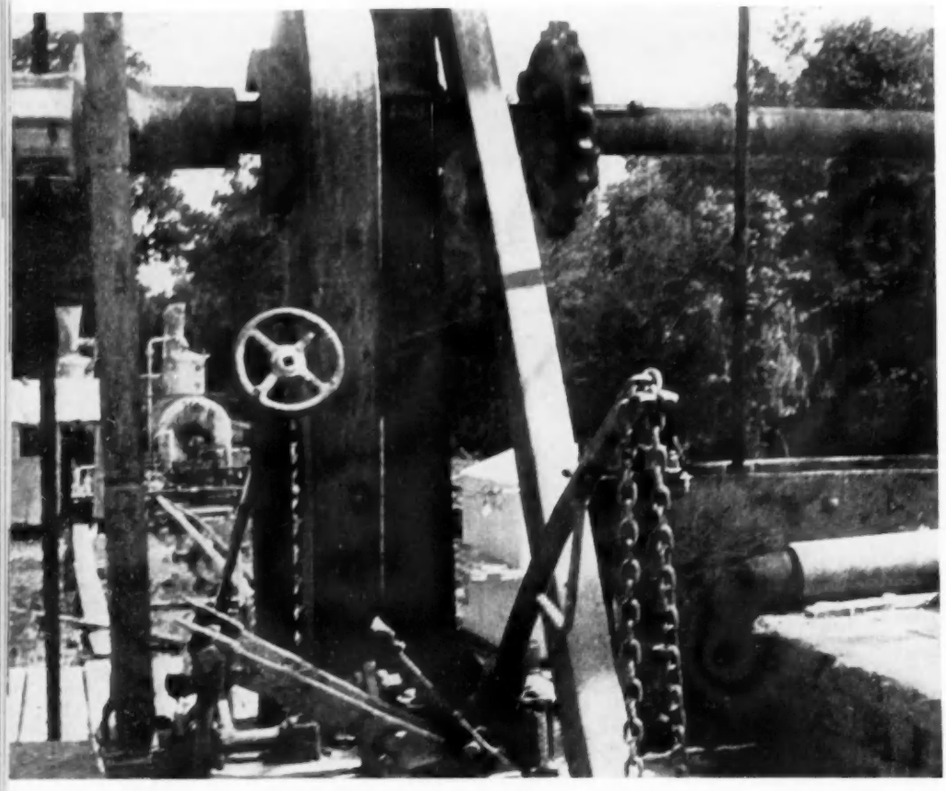
With the drawworks set under the edge of the floor, a rectangular opening, protected by 18-inch side walls of heavy steel plate to prevent accidental damage to rope or drum through articles falling into them from the floor, admits the wire line to the drum. In this position the entire spooling is in full view of the driller without shifting from his normal running position at the brake.

In this revised plan of operation a cathead shaft alone is mounted above the floor level, with the vertical chain driving it enclosed on the driller's side. A cathead shaft, so mounted, affords the driller close supervision of any lines being used on either end of the shaft, with consequent quicker stoppage in case of twisted or overrun line.

Since the removal of the rotary drive chain from the floor to a vertical position underneath the rotary sprocket removes the chain case from the floor, the usual stop against which pipe is racked when coming out of the hole is also eliminated. To provide for proper pipe spacing and to afford a firm foundation against possible slippage, heavy cast plates, with spaced bosses, are used, over one of which each joint is set before being released by the elevators.

Shortens Steam Line

Marked gain in economy and efficiency in bringing steam to the drawworks engine is noted by this shift. Not only is the steam line shortened by the length of the drawworks unit and the vertical line normally used to reach the derrick floor, but it is also simplified by being piped directly into the separator, level with and im-



Drillers stand, above, showing rectangular box shielding wire line and protecting drum against possible damage through dropping objects. Drill pipe stand at right. Below is one of the four leveling jacks under the drawworks skids, showing squared top and locknut which maintains desired adjustment once it is made.

mediately behind the engine. A short swing, carrying the emergency shut-off valve, leads from the top of the separator directly into the throttle body atop a short manifold to the paired steam chests of the engine.

Steam lines, both live and exhaust, are carried on blocking until the point of attachment to the engine, where swivel or ball joints provide for lateral shift without imposing strain on castings. Shortened lines also greatly reduce the elongation caused by heating and cut down on expansion strains thus set up.

With the drawworks skids supported on heavy timbers atop the foundation—of concrete or piling, as terrain dictates—means for accurately leveling the unit so as to relieve the engine of possible distortion stresses is secured through welding heavy steel projections at the corners of the unit, these being threaded with a relatively fine square thread and carrying large diameter screws which serve as leveling jacks. The top of these screws is squared to afford wrench purchase, while a heavy locknut below the support provides for locking the adjustment when made as guarantee against shifting while in operation.

Unitization of the drawworks for moving is aided through the mounting of the steam separator on the skids which carry the engine, with but two chains to be disconnected for shifting. The cathead posts and braces move integrally if a long move is contemplated, or are handled with derrick floor units when changing locations in the same field. All steam lines are tied in at specified points with quick-acting unions to break the lines into readily transportable units. These units, being union equipped, present a uniform installation plan, requiring only the usual overhead steam header mounting on the boilers and customary drop leg to absorb any expansion present as the line heats in service.

Removing the drawworks from the floor to the ground also simplifies the moving problem by placing the heaviest and most bulky unit on a foundation where its loading is a matter of skidding rather than lowering. Likewise, locating at a new site is easier, as the unit may be skidded or shifted on rollers to its prepared setting, conserving labor and time, with greatly improved safety conditions.

Pumping Series No. 43

Effects of Rod Vibration on Dynamometer Cards

By KENNETH N. MILLS, Chief Engineer and S. E. CORRY,
Sales Engineer, American Manufacturing Company of Texas

THE complex nature of the surface dynamometer cards obtained from a given well when it is pumped at various speeds has intrigued investigators of pumping problems since the first surface dynamometer cards taken, and numerous theories have been advanced to account for the variations in the shape of the dynamometer card with speed. The early investigators recognized such conditions as pounding gas, pounding fluid, gas-locked pumps, etc., but they did not offer any satisfactory explanation for the shape of the average dynamometer card obtained from a nominal well when pumped at a reasonable speed. However, they did recognize one type of dynamometer card which had a speed characteristic, and could be explained theoretically. This card was the ideal slow-speed dynamometer card. A theoretical card of this type for 100 percent pump efficiency, together with the sequence of events, is shown in Figure 1. A practical example of this type dynamometer card, which was obtained at a pumping speed of 6 S.P.M., is shown in Figure 2. The dynamometer card shown in Figure 3 shows the effect of increasing the pumping speed on this well to 11 S.P.M. As it is impossible to visualize how the increased acceleration imposed on the rod string by this increase in pumping speed could cause this drastic change in the shape of the dynamometer card, this change must be motivated by some other phenomena.

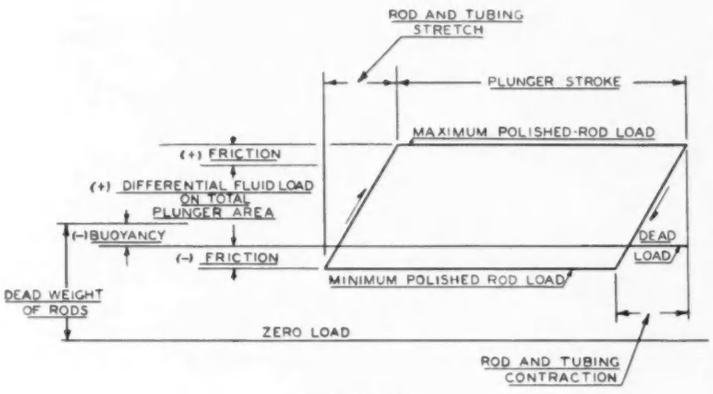


FIGURE 1

The existence of mechanical vibrations in the rod string of an oil well has been called to the attention of the industry by several investigators.[1,2,3] One of these investigators[3] explained how the mechanical vibration of the rod string caused the disturbed condition recorded by surface dynamometer on wells which were being pumped at resonant speeds, i. e., when the frequency of the pumping motion is equal to the natural frequency of the rod string divided by an integer. However, he did not fully explain the effect of the vibrations on the shape of the dynamometer card obtained from a well being pumped at a non-resonant speed.

To fully understand the effects of vibrations on the shape of the surface dynamometer card, one must understand the nature of the vibratory system, the action of the pump and the characteristics of the pumping motion. The vibratory system of the oil well consists solely of the rod string, and it can be analyzed as a steel rod fixed at one end and subjected to a suddenly applied force at the other end. The action of the fluid column on the plunger will be that of a shock absorber, and it will tend to damp out the vibrations existing in the rod string. The general equation for a vibratory system of this type is shown in most books on vibration, and it is:

$$f = \frac{N}{4L}\sqrt{\frac{E}{d}} = \frac{NV}{4L}$$

where

f = Frequency, in cycles / sec.
N = 1, 2, 3, - - -
L = Length of rod string, in feet
d = Density, mass per unit volume
E = Modulus of elasticity of material in rod string
V = Velocity of sound in rod string

$$= \sqrt{E/d} \text{ ft./sec.}$$

This equation indicates that the system has an infinite number of natural frequencies, any of which might become resonant with the pumping motion. Due to the facts that the damping forces existing in an oil well are rather large and the higher natural frequencies are quite removed from the greatest practical forced frequency, only the lowest frequency of the rod string need be considered when studying the vibration problem existing in an oil well. Considering only the lowest natural frequency of the rod string, the equation becomes:

$$f = \frac{V}{4L}$$

Assuming the weight of the

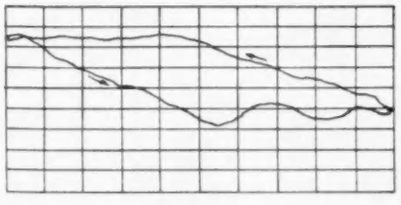


FIGURE 2

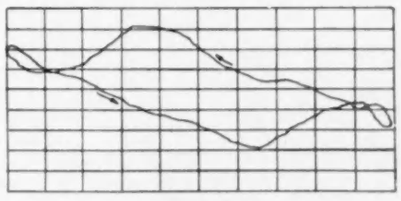


FIGURE 3

couplings to be uniformly distributed along the rod string, the velocity of sound in the rod string becomes 15,800 feet per second, or 948,000 feet per minute, and the equation for the frequency of the rod string becomes:

$$f = \frac{3950}{L} \text{ cycles / sec.}$$

$$f = \frac{237{,}000}{L} \text{ cycles / min.}$$

To determine if this equation for the natural frequency of the rod string is correct, a large number of dynamometer cards were plotted

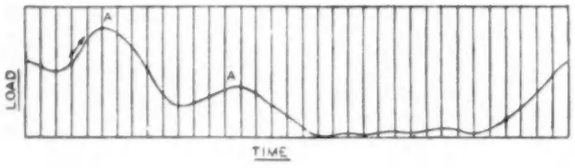


FIGURE 4

versus time, as shown in Figure 4. All of the cards analyzed were taken with a dynamometer which has a time-cycle recorder on it. This recorder traces a wave of known frequency on the dynamometer card simultaneously with the well-load record, and cards taken with it can be plotted versus time. The time interval between the two peaks A represents the time required for the rod string to execute one vibration, and this time interval is called the period of the vibration. Numerically, its value is the reciprocal of the frequency. On all of the dynamometer cards analyzed, the periods thus determined check remarkably well with the period obtained from the above equation for the natural frequency.

Effect of Damping

When attempting to understand the nature of the dynamometer card, one must have a thorough

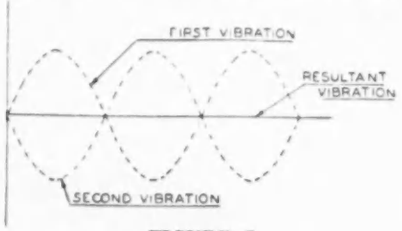


FIGURE 5

understanding of how vibrations add and subtract when two vibrations exist in a vibrating system,

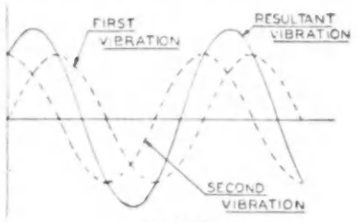


FIGURE 6

and the effect of damping on the amplitude of a given vibration. If a system which is vibrating at a constant amplitude has a vibration of equal amplitude and frequency induced in it which is exactly 180° out of phase with the original vibrations, i. e., the peaks are equal and opposite as shown in Figure 5, they will cancel each other, and the results will be a system which is at rest from the vibratory standpoint.

The extreme opposite of the foregoing condition would be a system vibrating at a constant amplitude into which a vibration of equal amplitude and frequency was induced exactly in phase with the original vibration. The results of this condition would be a vibration with twice the amplitude of the original vibration, as the two vibrations would add directly.

In between these two extreme

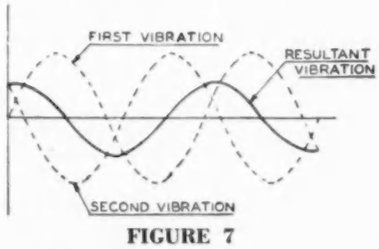


FIGURE 7

conditions lies an infinite number of possible manners in which two vibrations of equal frequency can be combined. Two vibrations of equal amplitude and frequency, which are nearly in phase, can be combined to give a vibration of

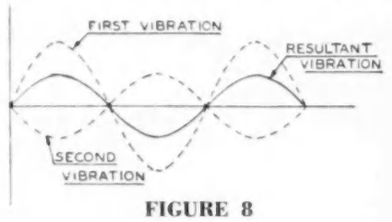


FIGURE 8

much greater amplitude, as shown in Figure 6, or they can be combined to give a vibration of much lower amplitude, as shown in Figure 7. The effect of this combina-

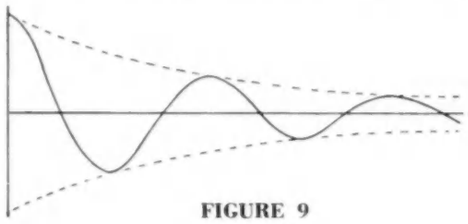


FIGURE 9

tion will depend on the phase angle between the two vibrations, and the resultant vibration will be out of phase with the two original vibrations.

In each of the above conditions, the vibrations have had equal amplitudes. If the amplitudes are not equal, the results will not follow all of the above rules. In the case of two vibrations of unequal amplitude and equal frequencies which are 180° out of phase, the resultant vibration will have a reduced amplitude, as shown in Figure 8. In the case of resonance, the resultant vibration will have an amplitude equal to the sum of the amplitudes of the two vibrations.

In all foregoing examples, damping has been neglected. In the practical case, damping always exists, and it will cause the amplitude of the vibration to decrease, as shown in Figure 9, until a static condition is reached. It may cause the initial vibration to die out before the second vibration is induced in the system, or it may only reduce the intensity of the first vibration before the second vibration is induced into the system.

Traveling Valve Induces Vibrations

The vibrations existing in the rod string of an oil well are all induced into it by the opening and closing of the traveling valve, because, when these events occur, loads are released and applied to

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the rod string. The intensity of these vibrations will depend on how quickly these events transpire. The best evidence of the truth of this statement is the behavior of a rod string which is not attached to the pump. A dynamometer card taken on a well operating under this condition at 9 S.P.M. is shown

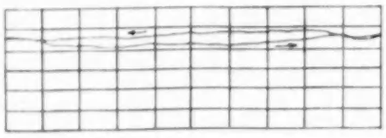

FIGURE 10

in Figure 10, and a dynamometer card taken on this same well, with the rod string attached to the plunger and being pumped at 6 S.P.M. is shown in Figure 11. Al-

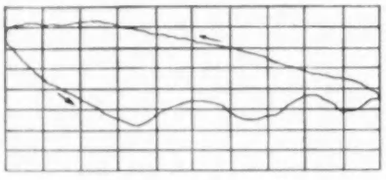

FIGURE 11

though the card taken with the rod string attached to the pump was obtained at a slower speed, it shows definite evidence of vibration, and the card taken with the free rod string shows no evidence of vibration. The intensity of the vibrations induced into the rod string will depend on the action of the pump, because the vibrations are set up by the pump's valve action. The action of the pump will depend on the condition of the pump and the nature of the fluid being handled by the pump. The action of the pump has been studied by W. E. Gilbert[4] and others. They have presented much valuable information on the nature of the pump's actions which can be used to understand the nature of surface dynamometer card. A characteristic pump dynagraph card (dynamometer card taken at the pump) is shown by the solid lines

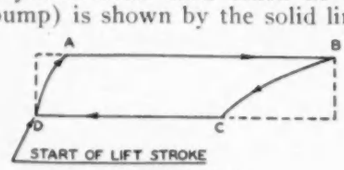

FIGURE 12

in Figure 12, and the pump cycle is defined in Table 1. A characteristic pump dynagraph card for a pump operating at 100 percent efficiency in a well which is producing a gas-free fluid is shown by the dotted lines in Figure 12. A detailed study of these two cards indicates two facts. The first is that the load in a well producing a gaseous fluid is transferred from the tubing to the rod string gradually, and that this transfer is more gradual when the rod string is relieved of the fluid load. The second is, that in a well producing a gas-free fluid, the load transfer is abrupt at each end of the cycle. The above statements are predicated on a pump which is functioning properly, and erratic pump condition can cause the nature of the load transfers at the pump to change. These erratic pump conditons may cause the nature of the pump's actions to be far different from what one would expect it to be in a given well.

PLUNGER MOTION	VALVE ACTION	FLUID IN PUMP	FLUID LOAD IS
D - A	BOTH VALVES REMAIN CLOSED.	GAS IN CLEARANCE SPACE EXPANDS FROM STATIC PRES. IN TUBING TO FLUID LEVEL PRES. AT PUMP.	ASSUMED BY RODS AS PRESSURE IN PUMP DECREASES.
A - B	STANDING VALVE OPENS AT A & CLOSES AT B.	FLUID IS DRAWN INTO PUMP.	CARRIED BY RODS.
B - C	BOTH VALVES REMAIN CLOSED.	GAS IN PUMP IS COMP. FROM FLUID LEVEL PRES. TO STATIC PRES. IN TUB.	TRANS. FROM THE RODS TO TUBING AS GAS IS COMP.
C - D	TRAVELING VALVE OPENS AT C & CLOSES AT D.	FLUID IS DISP. THRU TRAVELING VALVE INTO TUBING.	CARRIED BY TUBING.

TABLE 1

The action of the pump indicates that the nature of the vibrations existing in a given well will depend on its action, because the vibrations are set up by sudden applications or releases of the load on the rod string. In a well which has only one sudden load change at the plunger (one producing a gaseous fluid), a vibration will be induced into the rod string when the fluid load is assumed by the rods. No other vibration will be induced into the rod string throughout the pumping cycle, because the load release will be too gradual to induce a vibration into it. Also, the initial vibration will have small amplitude, because the fluid load will be assumed by the rod string gradually. For this reason the vibrations may be damped out before the next series of vibrations are induced into the system.

In a well which has two sudden load changes at the plunger (one producing a gas-free fluid), a severe vibration will be induced into the rod string when the fluid load is assumed by the rod string, and a severe vibration will be induced into the rod string when the fluid load is released from the rod string. As the load changes which accompany this type of pump action are abrupt, the amplitudes of the vibration induced into the rod string will be greater than in the former case, and they will persist over a longer period. These two pump actions only define the two extreme border conditions, and an infinite number of possible conditions lie between them. The effect of these intermediate types of pump action on the vibratory characteristics of the rod string will depend solely on the rate at which load is transferred to and from the rod string.

As a definite period of time is required for the motion of the polished rod to be transmitted to the plunger, and the same period of time is required for the fluid load on the plunger to be transmitted back to the polished rod, the events at the bottom of the hole, which are motivated by the surface pumping machinery, will be recorded at the polished rod after a small elapse of time. The time required for a force which is motivated by the surface pumping machinery to be transmitted to the plunger and back to the surface is expressed by the equation:

$$T = \frac{2\,L}{V}$$

where:

T = Time required for load impulse to traverse twice the length of the rod string, in seconds
L = Length of rod string, in feet
V = Velocity of sound in rod string, in ft./sec.

The equation for the natural period of the rod is:

$$P = \frac{4\,L}{V}$$

where:

P = Natural Period (Time required for rod string to execute one vibration, in seconds).

On comparing these equations,

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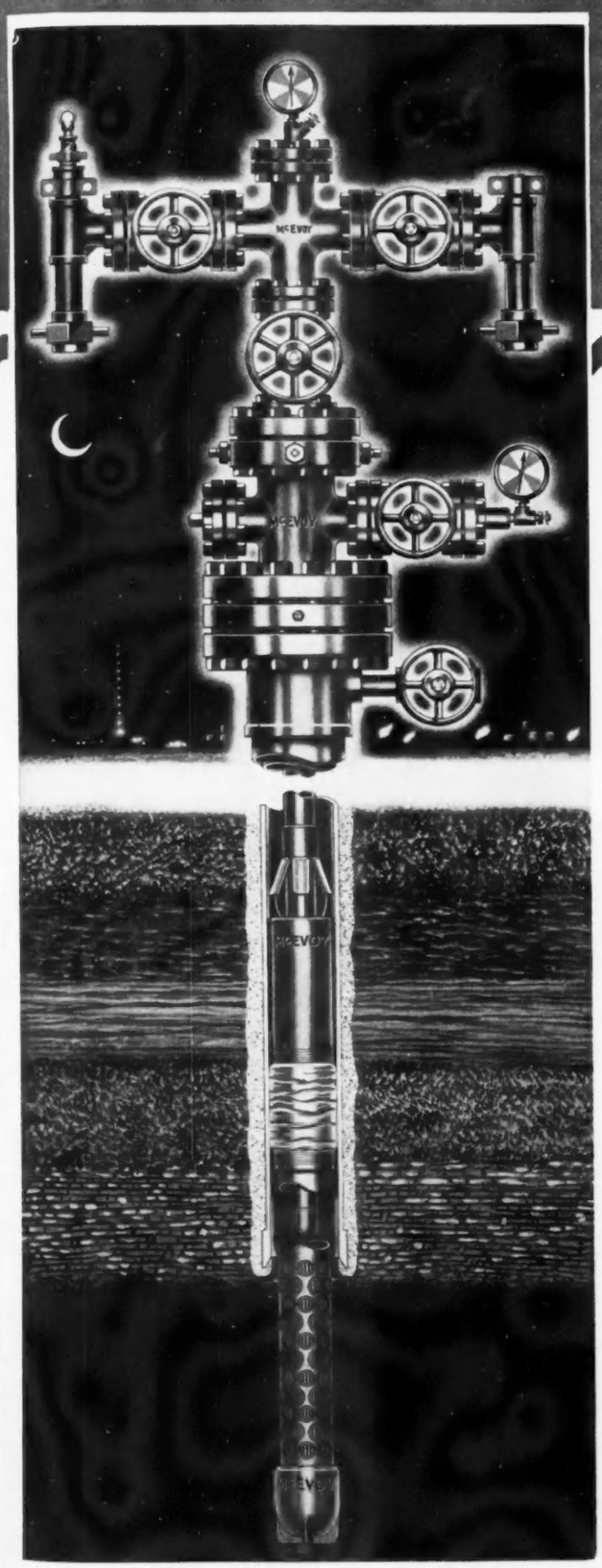

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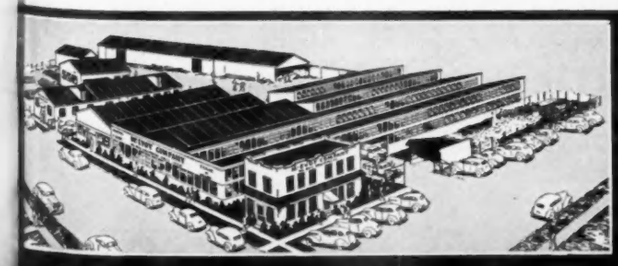

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it will be noted that, the time required for a force to be transmitted to the plunger and back is equal to one half of the natural period of vibration of the rod string. This indicates that all of the events at well whose pump action induces only one vibration per cycle in the rod string, because they will determine the distortion of the vibrations as recorded on the surface dynamometer card.

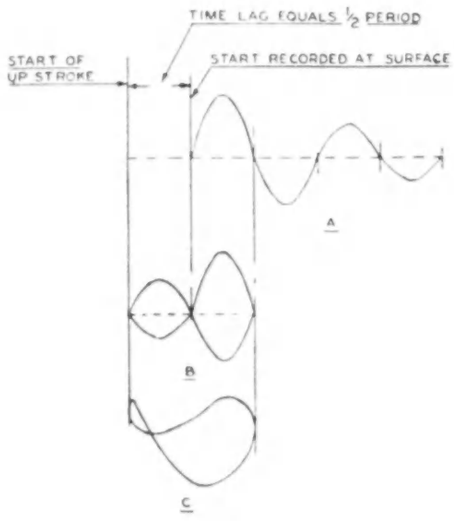

FIGURE 13

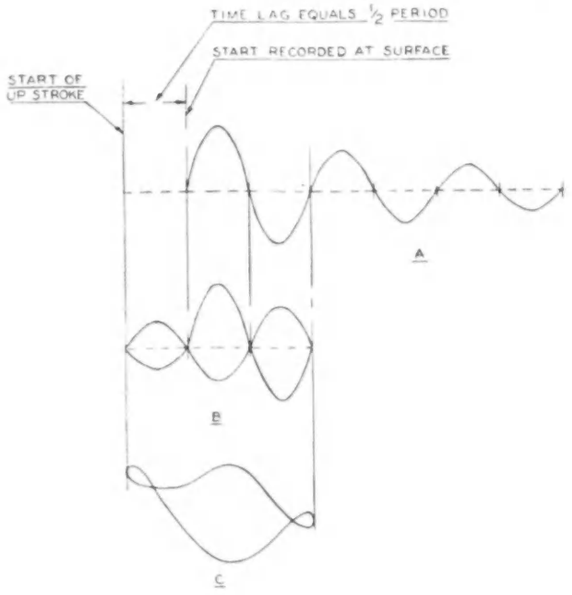

FIGURE 14

the bottom of the hole, which are motivated by the surface pumping machinery, will be out of phase with the surface equipment by an amount equal to a half period. This will cause the vibrations which are recorded at the polished rod to be out of phase with the polished rod motion by approximately a half period.

The effect of these vibrations on the shape of the surface dynamometer card will also depend on the relative lengths of time required to execute the up and down portions of the pumping cycle, the characteristics of the polished rod velocity over the pumping cycle and the ratio of the natural frequency of the rod string to the frequency of the pumping motion. The first two factors depend on characteristics of the surface pumping machine, i. e., geometry of the pumping machine, rotating inertia in the system, counterbalance, prime-mover characteristics, etc. The durations of time required to execute the up and down portions of the pumping cycle for a given pumping speed will determine the phase angle between the two sets of vibrations set up by the opening and closing of the traveling valve. These time periods will also effect the shape of the dynamometer card obtained from a

Developing Resonance

The possibility of developing a condition of resonance, i. e., having each set of vibrations induced into the rod string exactly in phase with one another, is much higher in a well which has only one train of vibrations induced into it per cycle than it is in a well which has two trains of vibrations induced into its rod string per cycle. In a well whose rod string has only one train of vibrations induced into it per cycle, the force inducing the vibration re-occurs after approximately equal intervals of time. If these forces act on the rod string at intervals which are equal to the natural frequency of the rod string divided by an integral number, a condition of resonance will exist. The effect of operating a well with this characteristic at a resonant speed will depend on the ratio of the natural frequency of the rod string to the frequency of the pumping motion, because this ratio will determine the number of vibrations recorded on the surface dynamometer card. If the frequency ratio is two, the polished rod will have traveled approximately half the lift stroke before the closing of the traveling valve will be recorded on the surface card, and the closing of the traveling valve will be recorded as an increase in the polished-rod load. The manner in which the vibrations develop in a well of this type, as time progresses, is illustrated in Figure 13-A, and Figure 13-B shows the effect of doubling these vibrations back to conform with the usual polished-rod dynamometer card. The fluid and inertia loads will cause the practical dynamometer card to assume the general characteristics shown in Figure 13-C.

If the frequency ratio is three, the polished rod will have traveled approximately one third of the lift stroke before the closing of the traveling valve will be recorded on the surface card, and the closing of the traveling valve will be recorded as an increase in the polished rod load. The manner in which the vibrations develop in a well of this type as time progresses, is illustrated in Figure 14-A, and the effect of doubling these vibrations back to conform with the usual polished rod dynamometer card is shown in Figure 14-B. A characteristic example of a dynamometer card of this type is shown in Figure 14-C.

From the foregoing examples, it can be seen that the ratio of the time lag to the time required to execute half of the pumping cycle decreases as the frequency ratio increases. When the frequency ratio is four, the vibrations develop as shown in Figure 15-A, and when they are doubled back to correspond with the usual dynamometer card, they appear as shown in Fig-

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ure 15-B. The practical dynamometer card of this type will have the general characteristics shown in Figure 15-C.

In a well whose rod string is subjected to two sudden load impulses per cycle, the conditions necessary for resonance are quite different, because two distinct sets of vibrations are induced into the rod string per cycle. Also, when resonance does occur, the effects are different. If the time intervals between the two actions of the pump are equal, it is possible to develop a condition of resonance. If they are not equal, it is not possible to develop a true condition of resonance. The effects of operating a well with this characteristic, at a resonant speed on the shape of the dynamometer card will depend on the ratio of the natural frequency of the rod string to frequency of the pumping motion, because this ratio determines the phase angle between the two trains of vibrations induced into the rod string. If this ratio is an odd number, the two trains of vibrations will be in phase and therefore, will build up to a constant amplitude on both portions of the cycle. If this ratio is an even number, they will be 180° out of phase, and therefore, they will either not exist or have a very small amplitude during one half of the cycle. This condition is illustrated in Figure 16 for a frequency ratio of 2. The development of the vibrations, as time increases, is shown in Fig-

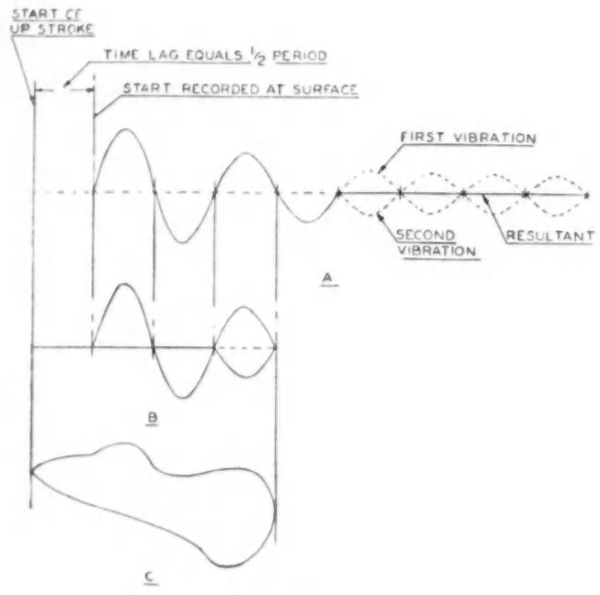


FIGURE 15

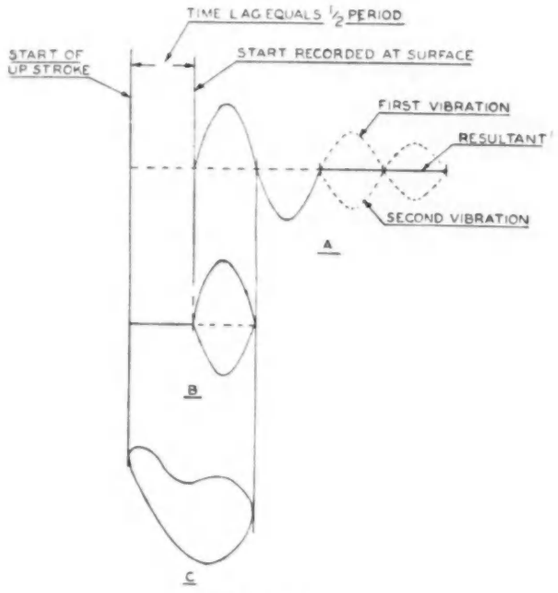


FIGURE 16

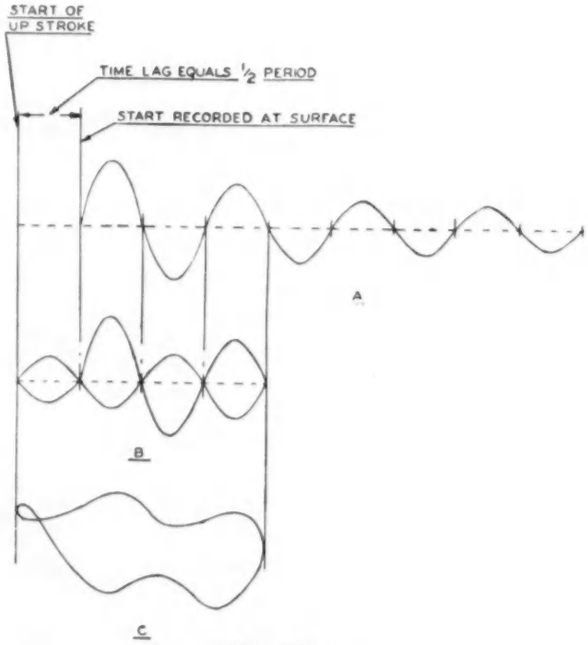
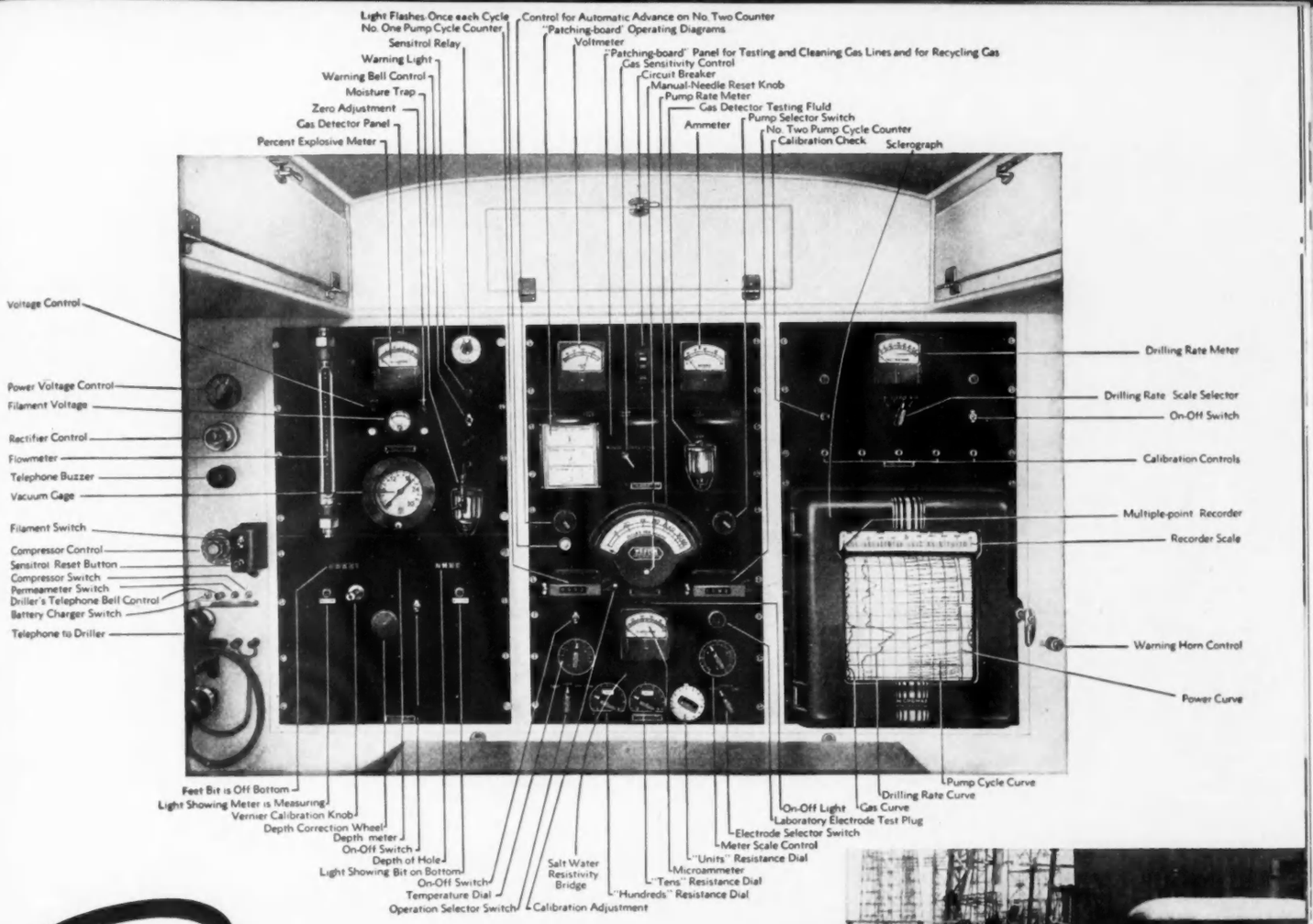
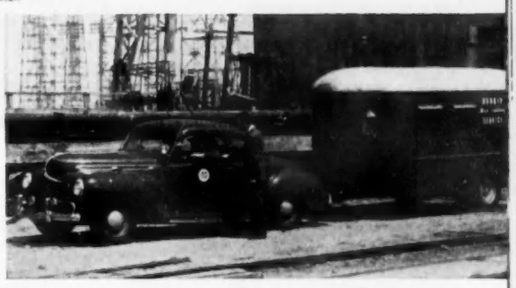


FIGURE 17





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ure 16-A. As in the case of one impulse per cycle, the vibrations are not recorded at the polished rod until a time interval equal to half of the natural period of vibration has elapsed. This train of vibrations persists until the rod string executes one complete vibration. At the end of this period, the load is released from the rod string, and this load release induces a compressive wave into the rod string. As the frequency of this compressive wave is equal to the frequency of the vibration existing in the rod string, and it is 180° out of phase with the vibration existing in the rod string at that instant, it will tend to cancel out the existing vibration as shown in Figure 16-A. The results of folding these vibrations back to conform with the usual dynamometer card are shown in Figure 16-B. The practical dynamometer card obtained from a well operating under this condition will have the general characteristics shown in Figure 16-C.

When the frequency ratio is three, the vibrations in a well of this class will follow the same laws as in the case of a well whose rod string is subjected to only one impulse per cycle, because both trains of vibrations will be in phase.

When the frequency ratio is four, the vibrations in a well whose rod string is subjected to two load impulses per cycle will follow the same rules as in the case of a frequency ratio of two. The development of the vibrations, as time proceeds, in a well of this type is shown in Figure 17-A, and the results of folding these vibrations back to conform with the usual dynamometer card are shown in Figure 17-B. A characteristic dynamometer card for a well of this type is shown in Figure 17-C.

In the examples shown for wells of the two impulses type, which are being operated at an even frequency ratio, the vibrations have been shown to cancel out on the drop half of the cycle. In practice they may be cancelled out on either half of the cycle, or exist in a subdued form only on one half of the cycle. They will persist on that part of the cycle during which they are subjected to the least damping force in comparison with the amount of impulse energy imparted to the rods by the pump's valve action. As this condition is effected by numerous factors, it can not be predicted.

Evidence of the existence of the above outlined conditions presents itself most dynamically in dynamometer cards taken on wells where the frequency ratio is high, because in such wells a relatively large number of cycles of vibrations are recorded on each half of the stroke. The dynamometer card

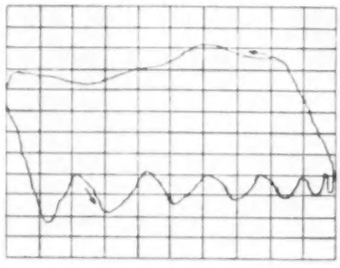

FIGURE 18

shown in Figure 18 was obtained from a 2100-foot well which was being pumped at a relatively slow speed. On this card it will be noted that vibrations exist only on the drop half of the cycle. They do not exist on the lift half of the cycle, because the train of vibrations set up by the closing of the traveling valve was 180° out of phase with the vibrations set up by the opening of the traveling valve. Another

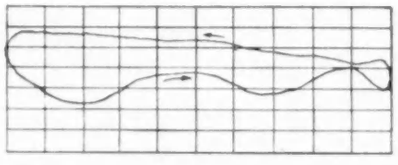

FIGURE 19

dynamometer card illustrating this condition is shown in Figure 19.

A dynamometer card which records two distinct sets of vibrations is shown in Figure 20. This dynamometer card was obtained from a 4175-foot well which was being pumped at a relatively slow speed. On this card it will be noted that the amplitudes of the vibrations are greatest at the start of both halves of the cycle, and that they decrease as the time spent on each half of the cycle proceeded. This indicates that the vibrations are being damped out, and that they were set up by the pump's valve action. Also, the general appearance of this card indicates that the two seats of vibrations were in phase, or nearly so, as they exist on both halves of the cycle.

In the interest of simplicity, only boundary conditions have been dealt with, and in treating the sub-

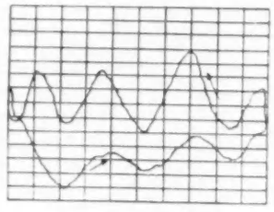

FIGURE 20

ject in this manner, it is not intended to infer that the conditions outlined will apply to all wells. As between the two conditions described an infinite number of possible conditions lie, an infinite number of possible types of dynamometer cards must exist within these boundaries. As some of the conditions which effect the shape of the dynamometer card are primarily dependent on the action of the pump, they are for the most part beyond the control of the operator, if he attacks the problem analytically. However, if he attacks the problem from a practical angle, and uses a dynamometer to make well studies, he can solve these problems, because he can use the "try and fit" method to determine the optimum operation conditions at that time.

ACKNOWLEDGMENTS

The writers wish to acknowledge their indebtedness to the following men for much of the practical information upon which this paper is based:

W. C. Dreyer, Westinghouse Electric & Manufacturing Company, Houston Texas; C. P. Dimit, Phillips Petroleum Company, Bartlesville, Oklahoma; E. A. Jenkins, Skelly Oil Company, Tulsa Oklahoma; Field Engineering Department, The S. M. Jones Company, Tulsa, Oklahoma.

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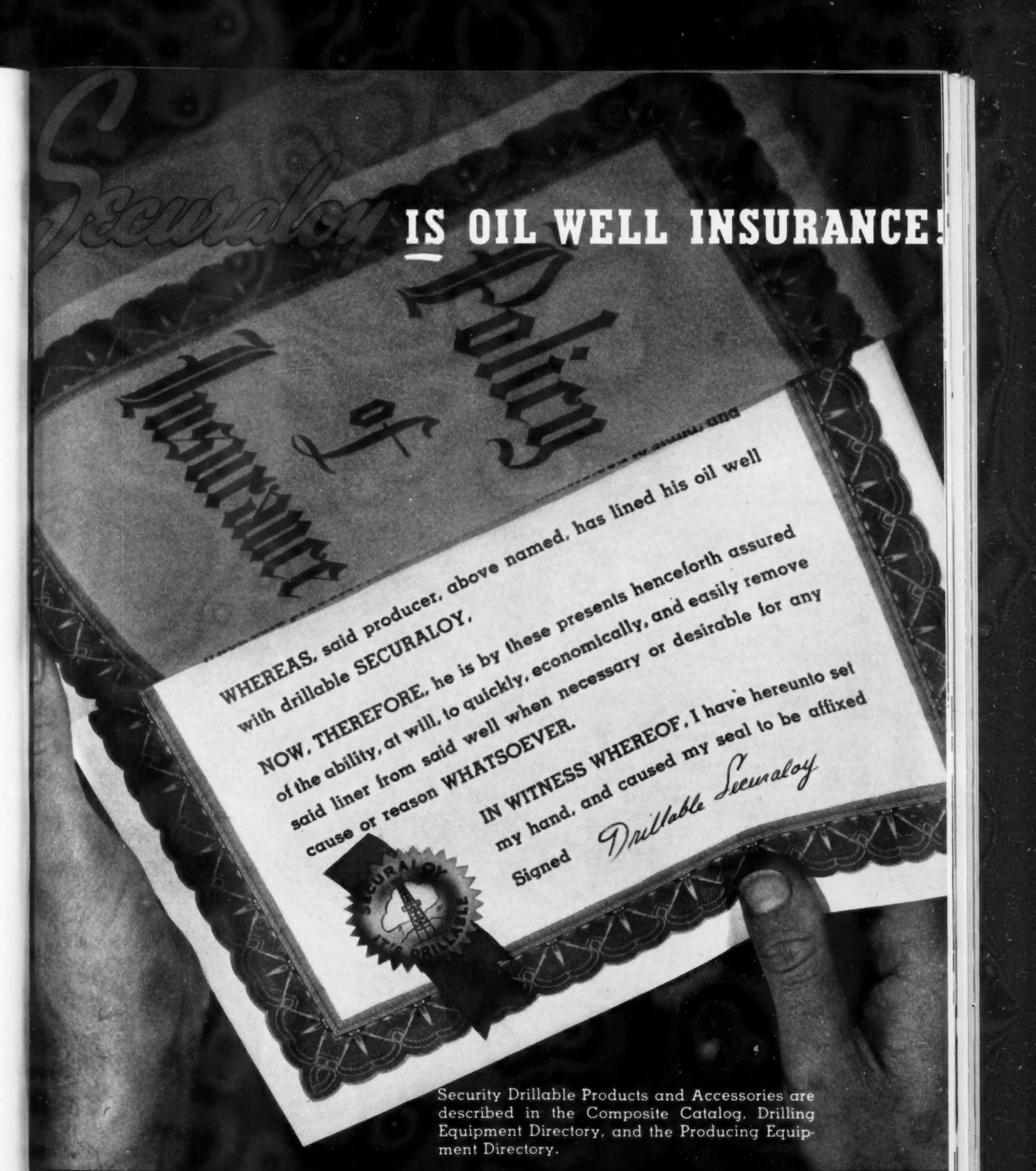
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Sand Pack Solves Well Sanding Problem

By CLAUDE JOHNSTON
General Superintendent, Delta Drilling Company

COMPLETED as a salt dome flank producer in an unidentified sand at 5100 feet, Delta Drilling Company's Constantin 1, Leesville, La Fourche Parish, Louisiana, flowed for a short time, producing 38-gravity oil of paraffinic base. Almost from the date of completion, however, on August 14, 1936, the well gave promise of trouble, and was placed on the pump as soon as the initial gas drives subsided.

The well was drilled under difficulty, with a pronounced dogleg at 3200 feet, due to junked and sidetracked drill stem, and a second dogleg introduced during the well's production life when an early screen pipe sanded up and stuck, necessitating re-completion from the 5014-foot mark to pay.

Sand formed the principal production difficulty, 10 settings of screen being made between the completion date and the first of October, 1939. At this time, with screen settings and time consumed for work-overs mounting rapidly and returns diminishing, abandonment of the well was contemplated, due to the exceedingly fine grain of sand produced with the oil and apparent inability to exclude it and thus prevent severe pump, rod and tubing wear and often clogging the tubing rapidly and killing the well in less than 48 hours.

The eleventh setting of screen in this well was made on October 14, 1939, and involved the use of a regulated, carefully proportioned packing of sand between inner and outer shells of specially fabricated screen pipe. Between bottom and top packers approximately 76 feet of this screen was used, set on bottom within the 7-inch casing of the well. This screen pipe was 5½-inch O.D., with accurately spaced and under cut 0.012-inch slots within the entire range. These slots, with a maximum width or throat of ⅛-inch, were relieved on the inner side by milling to prevent possible or eventual packing of the slits by the sand, ranging around 0.024-inch grain diameter.

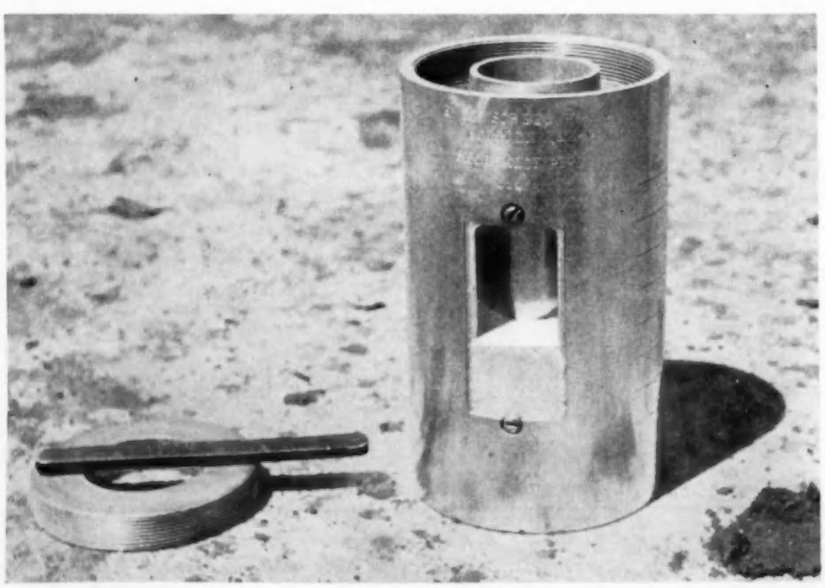
Centrally spaced within this outer shell was the tubing extension, of 2½-inch I.D. material. This inner tubing also was slotted, with horizontal slots of the same type as those in the 5½-inch shell, except that the inner slots were 0.008-inch wide. As with the shell, inner milling provided clearance through a portion of the metal of the tubing, and minimized clogging. Bronze spiders or spacers were set on this inner tubing at intervals close enough to insure uniformity of the annular space between shell and tubing; use of this metal insuring drillability if necessary.

Into the space between shell and tubing was poured carefully sized, sharp sand of an average grain size of 0.024-inch, with maxima and minima of 0.029 and 0.021 respectively.

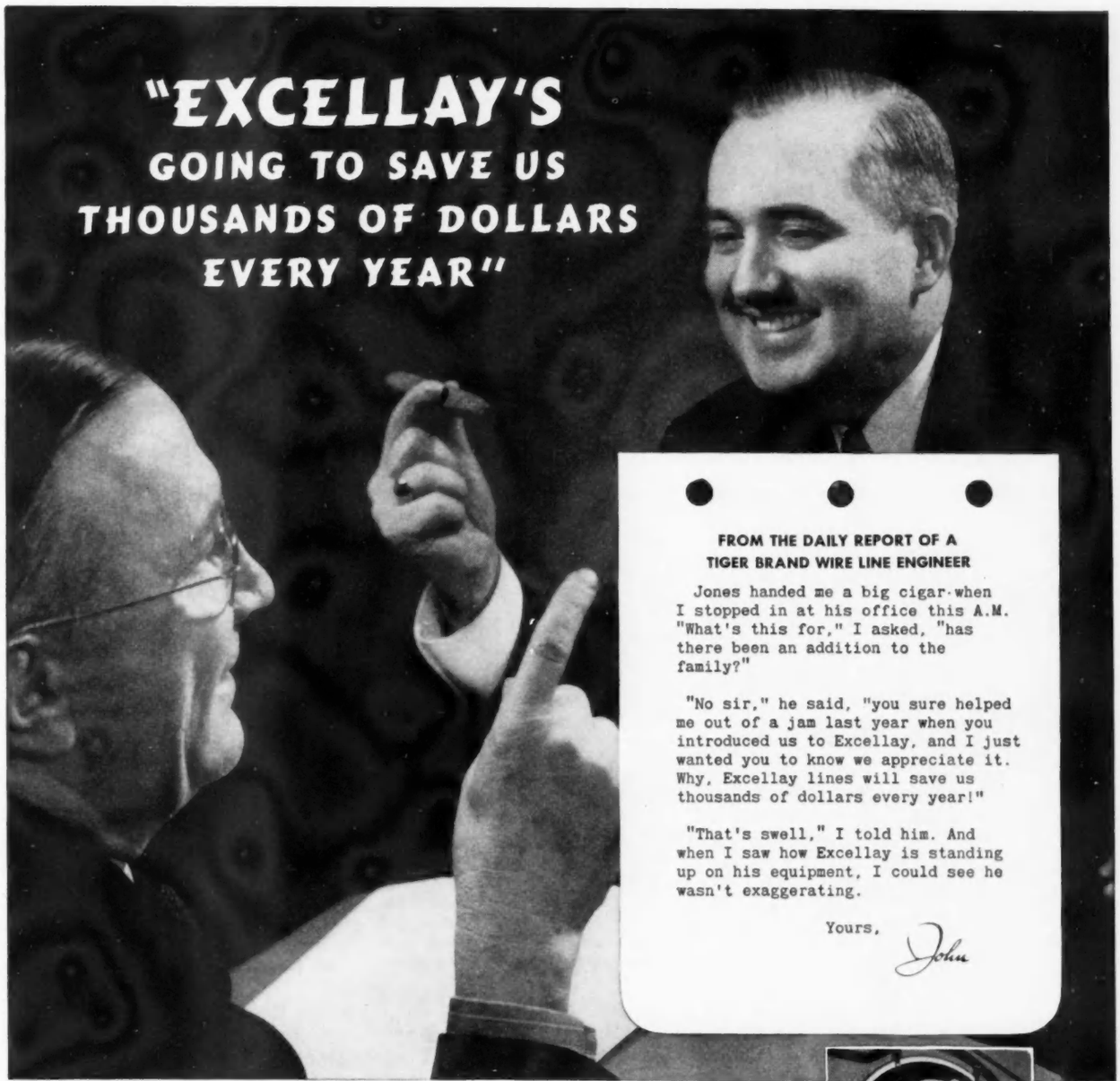
This sand pack, composed of particles too large to enter slots in either shell or tubing, formed a uniform screen of the thickness of the annular space over the entire 76 feet of screen, affording adequate channels for oil flow, but arresting the movement of the minute sand particles. The addition of sand particles from the oil tended only to reduce the size of the voids between grains, and thus to intensify the screening action of the annular section of sand, without operating to choke or shut off production.

Despite the two abrupt doglegs in this well, no trouble was experienced in running this screen or landing it on bottom. Contributing to this success was the fact that the screen was made up with flush pipe threads, and presented no irregularities of form to tend to hang at the sudden deviations in well direction.

To date the well is still producing the same amount of fluid as it flowed when originally equipped with the screen on October 14, 1939.



Section of sand pack screen, showing slots in shell, sand pack in annular space, and inner tubing. At left are top sealing ring and spanner used in sealing sand within screen section.


"EXCELLAY'S
GOING TO SAVE US
THOUSANDS OF DOLLARS
EVERY YEAR"
FROM THE DAILY REPORT OF A
TIGER BRAND WIRE LINE ENGINEER
Jones handed me a big cigar when I stopped in at his office this A.M. "What's this for," I asked, "has there been an addition to the family?"
"No sir," he said, "you sure helped me out of a jam last year when you introduced us to Excellay, and I just wanted you to know we appreciate it. Why, Excellay lines will save us thousands of dollars every year!"
"That's swell," I told him. And when I saw how Excellay is standing up on his equipment, I could see he wasn't exaggerating.
Yours,
John

WHEREVER wire lines are used, you can be sure that not far away is one of the arms of the American Steel & Wire Company, the Tiger Brand Wire Line Engineer.

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DRILLING CONTRACTORS' NOTEBOOK

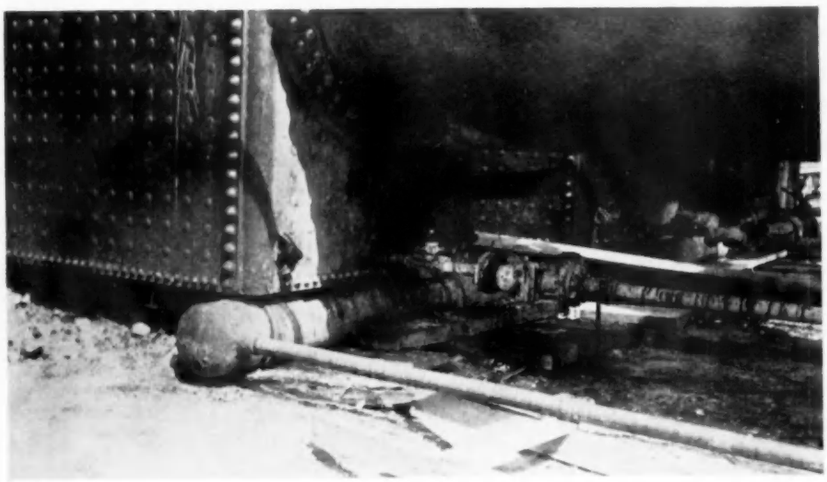
Helpful Suggestions For Those Interested In Drilling Methods

Operating Ideas Maintenance Hints New Rig Hook-ups

Published as a regular feature of THE OIL WEEKLY

1. TRANSPORTATION

Feed-Water Heater of Extra Heavy Pipe Used as Support for Fire-Box End of Boiler



This assembly serves as a feed-water heater and support for front of fire-box end of the boiler. The set-up reduces weight of equipment when moved to location.

DUPLICATION of service performed by any unit of drilling equipment lessens the weight to be moved when changing location. By building the feed water heater of extra heavy pipe and spacing the collars properly, this unit may be used to support the front end of the fire box, with the mud ring resting directly on the collars.

In setting up, the heater unit is levelled across the boiler site with adequate blocking to maintain it level under load. The boilers are then skidded into place and lowered until the weight of the fire-box section is taken by the heater. This forms an arc of contact around which the boilers may be rotated slightly when jacking the smoke box end to proper level. Slipping of the boiler unit is prevented by the contact of two or more pairs of rivets under the mud ring atop the rounded surface of the collars.

2. DRILLING

Portable Shelter for Core-Drilling

THE Carter Oil Company has designed a portable shelter for its core drill rig operating in the Illinois basin to provide core-drill crews protection against cold winds, rain, sleet and other unfavorable weather conditions.

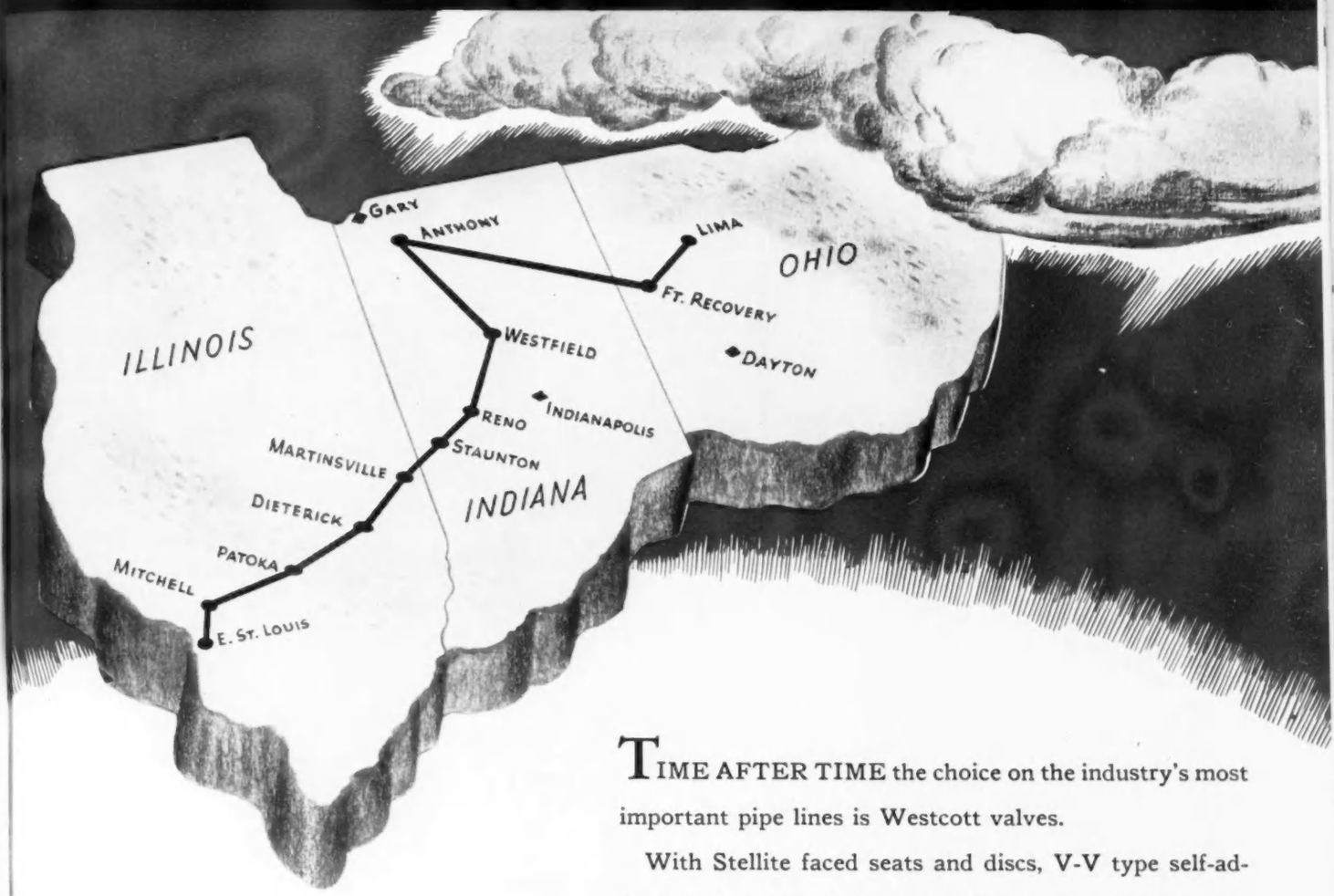
The shelter fits around the core-drill mast and drill at the rear of the drill truck, affording safety and protection for crew members while drilling.

Mobility is one of the most attractive features of the shelter. When the portable derrick is lowered into traveling position, its upturned legs fit against the angle irons supporting the roof of the corrugated steel shelter, lifting the lean-to off the ground to parallel the body of the truck itself. It is then winched to the truck and moved to the next location without difficulty.

Built at a very small cost, this shelter house has proven practicable under drilling, traveling and field conditions.

This shelter house for a core drill rig is shown in position during drilling, at the left; being raised off the ground with lowering of the derrick, in the second picture, and winched onto drill truck ready to be moved, at the right.

WESTCOTT VALVES *Assure* PERFECT CONTROL ON THIS 500 MILE PIPE LINE



TIME AFTER TIME the choice on the industry's most important pipe lines is Westcott valves.

With Stellite faced seats and discs, V-V type self-adjusting braided asbestos packing, and a positive type wedging action, you get leak-proof control without costly upkeep.

The practical man appreciates the full hole opening, the feature of repacking under pressure and the quick closing, non-galling alloy steel stem. Get the facts on Westcott valves — any Continental representative will gladly give you details.

Westcott 10", 800 lb. working pressure, 1600 lb. test, semi-steel pipe line valve, bronze mounted.

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3. SAFETY

Stile Used for Passage Over Lines

TO insure safe crossing over lines carrying steam and water from boiler unit to drilling rig, one company has standardized on a welded stile with grille footing and handrails. A toeboard, serving also as brace for the base of the structure, prevents accidental tripping through catching the foot under the first step when using the cross-over.

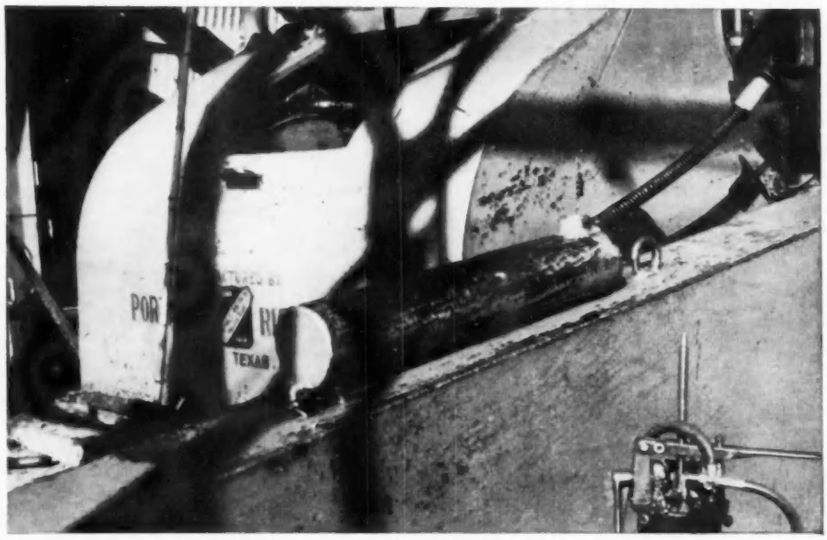
The base is provided with holes through the bottom angles so that it may be spiked or lagscrewed to the planking supporting it, although for practical purposes the cross-over has ample weight to maintain it in place throughout the time required for drilling a well.

A crosswalk with grilled steps and platform provides safe passage over the steam and water lines at the rig.

4. LUBRICATION

Drip Oiler Conditions Rotary Chain

A DRIP oiler attached to the rotary chain housing at rigs of Helmerich & Payne provides a thorough oil-bath for the chain. A 2-foot piece of 5-3/16-inch pipe, headed at both ends and fitted with a 2-inch collar on the top side and a ¼-inch pet cock on the opposite end, it attached to the upper side of the housing. The quantity of oil is governed by the pet cock.



An oil reservoir attached to rotary chain housing provides lubrication for chain.

5. RIGGING UP

Anchored Blow-Off Lines Ease Strain

BOILER blowoff lines at Sultana Drilling Company's rig in the Waskom gas field are anchored at the outer end to prevent vibration or whiplashing under steam flow from imposing unnecessary strain on boiler fittings and valves.

The ends of the lines are held securely by means of short sections of two-inch pipe, driven at an angle to form an X across each blowoff line. A heavy plank is placed just below the X to prevent the end of the pipe from working into the ground and develop slack under the crossed pipes.

Further protection to blowoff lines is secured by using a collar on the end of each line, preventing rusting of the end threads and maintaining the pipe in usable shape for additional use.

Two-inch pipes, driven into the ground across the end of the boiler blow-off lines, prevent whiplashing of the pipe and ease the strain on boiler fittings.

HIGHLIGHTS IN THE WEEK'S NEWS

Allowables

Texas Curtails Production In Emergency Move

The Texas Railroad Commission was not slow to act in reducing the state's allowable production following an "emergency" hearing, June 18, to consider the crisis said to be created by excessive stocks and collapse of foreign markets as a result of developments in the European war.

All Texas oil fields were ordered shutdown on June 23 and 30, allowables of certain Gulf Coast Southwest Texas fields were slashed, the Panhandle area drew an increased output of 20,000 barrels, and East Texas was restored to its former production method.

On this basis, it appeared that the daily average net allowable for the remainder of June would be approximately 1,024,800 barrels. Texas has been producing 1,400,000 barrels daily.

In addition, all Texas fields are to be closed for five days during both July and August, which will do much to reduce the total net allowable of the state. It was estimated production in July should be approximately 1,300,000 barrels.

These actions were taken after a statewide hearing to consider a solution to increase crude and gasoline stocks and to extend loss of foreign export markets as a result of the European war, particularly the collapse of France and entrance of Italy into the combat.

In a statewide order effective June 22, and running to September 1, the commission provided the following new allowables: Conroe, 25,580 barrels; East White Point, 9423; Plymouth, 8183; Tom O'Connor, 19,106; Longhorn, 2067; La Rosa, 3166; Alice, 1645; Ben Bolt, 2300; Rincon, 1347; Tom Graham, 1102. This order provides also that effective July 1, and continuing to September 1, the following revised allowables are ordered: Louise, 1134; Nome, 1079; Clam Lake, 245; Sarnosa, 526; Halley, 364; Magnolia-Sealy, 794; Greta, 4556; Walnut Bend, 3660; Panhandle District, 83,409, including the Osborne area with 526 barrels and Moore County with 703 barrels.

The commission reinstated its former East Texas order effective June 22. It provides for the establishment of allowables on the basis of 2.32 percent of the hourly potential. This new East Texas order is specifically an emergency order, and will be superseded by a permanent one. The commission will hold a hearing in Kilgore, probably July 2, to consider permanent regulations. The new order provides for 20 barrels minimum output for each well in the field, and for closing the field on June 22, 23, 26, 29 and 30, and on July 4, 6, 14, 21 and 28; August 1, 4, 11, 18 and 25. Therefore, the field will produce for four of the nine days remaining in June after the order went into effect. The new top allowable will approximate 522,000 barrels daily, but since there are only four producing days remaining in June total output from June 22 to July 1 will be 2,088,000 barrels, or a daily average of 232,000 barrels. On the basis of five shutin days in July and August, it was estimated East Texas production would increase to approximately 425,000 barrels, whereas it has been producing around 380,000 barrels. However, some quarters thought it likely additional production holidays would be ordered for these months.

War Brings Crisis to Texas Oil Markets

Deep concern over the oil market situation was expressed by several Texas oil men at a special "emergency" hearing called hurriedly by the Texas Railroad Commission, and held June 18 in Austin. It was stated that the loss of France and Italy as export markets due to developments in the European war, and excessive stocks of both crude and gasoline, created an extremely acute condition. This meeting preceded a new commission order that materially reduced Texas production (see preceding story).

It was pointed out that some two million barrels of gasoline were in storage along the Gulf Coast, and about 100,000 barrels of Texas crude oil was going to storage daily. This condition was expected to be further aggravated with the loss of the French and Italian markets.

Toddie Lee Wynne, attorney for American Liberty Pipe Line Company, declared there was a national emergency. He roughly outlined the statistical position of crude and overall stocks and said that these stocks were within six million barrels of the total on hand last August when the Commission ordered a state-wide shutdown.

Wynne pointed out that the French collapse had resulted in material reductions of the Texas export market and that some fields along the Gulf Coast where special allowables had been granted to supply export trade were the source of the distress oil. Wynne warned that in the event this gasoline was dumped, crude prices generally might fall. It was this belief, he inferred, that led him to believe the emergency was of national proportion.

Wynne proposed that the Commission reduce production one-third immediately. He suggested that this be done either by a 15-day shutdown, a shutdown every other day for 30 days, or a cut of one-third in the total Texas allowables for a period of 45 days.

While the hearing failed to develop just who the refineries were with two million barrels of excess gasoline in coastal tanks, it did finally disclose that the loss of export markets had caused the crisis, if there was one. In other words, it appeared that these operators had no hope of finding a market because of the vast gasoline storage that had been built up during past months. For that reason, they appeared to be faced with bankruptcy unless someone was willing to help them.

The commission then called for nominations from each company to determine whether it was willing to buy during June and July the oil it had nominated to purchase when these figures were filed at the statewide hearing in May. While there were some minor reductions in the total nominations offered they were largely concentrated in three companies. Terminal Refining Company asked a reduction of 200 percent in its take. This includes connections in the La Rosa, Alice, Ben Bolt and Tom Graham fields. Taylor Refining Company asked for a cut of 80 percent in its nominations for oil from the Corpus Christi field.

Virtually every major purchaser announced it would take the oil it had asked for and in most cases, would accept a little more from particular fields. Sinclair Prairie Oil Company, while it reaffirmed its nominations generally, asked for increases from 14,200 barrels to 16,539 barrels daily in the K.M.A., Hulk-Silk and Sikes area of North Texas. The company also announced that effective June 19, it had discontinued pipe line proration in Texas. Sinclair Prairie nominated 40,000 barrels for East Texas, an increase of 3000 barrels there, and increased its nominations for the Walnut Bend area from 1960 to 3800 barrels daily.

The commission went over each of the fields in Southwest Texas and the Gulf Coast where it was believed that "soft spots" might exist in the market. It was during the course of this investigation that the difficulty of Terminal Refining Company and Taylor Refining Company was revealed. The net result of the investigation disclosed while Texas with a total allowable approximating 1,320,000 barrels daily was not producing more oil than was

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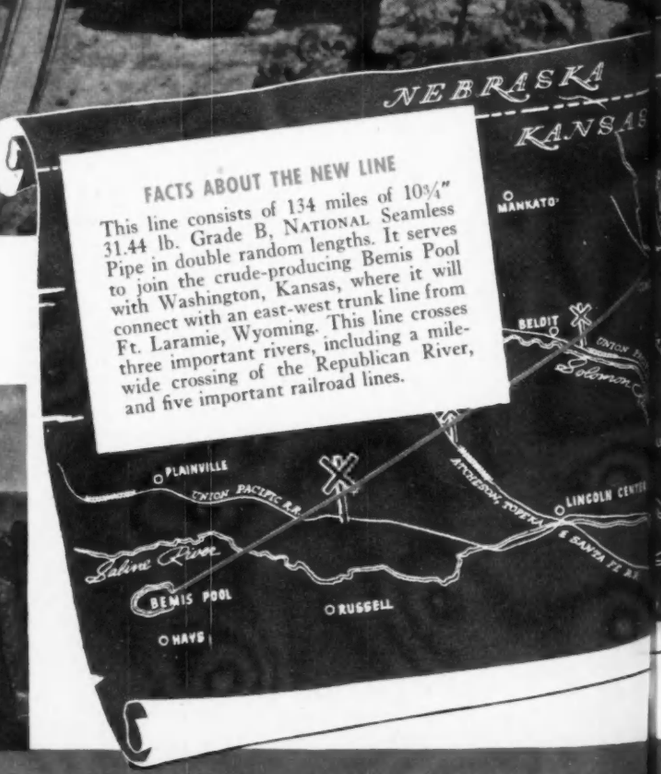
TO CARRY CRUDE

MOVING UP toward the prepared ditch a section consisting of two 40-foot lengths of NATIONAL Seamless Pipe. Workmen quickly found that this pipe is strong and tough, that they don't have to pamper it.

BENDING PIPE right in the field, is a good test of any pipe. On this line, NATIONAL Seamless withstood numerous field bending operations without showing any tendency to buckle.

WELDERS moved right along on this line, and one reason for their remarkable progress was the fact that clean, accurately finished ends are a characteristic of NATIONAL Seamless Pipe. Equally adaptable to other types of joints.



FACTS ABOUT THE NEW LINE

This line consists of 134 miles of 10¾" 31.44 lb. Grade B, NATIONAL Seamless Pipe in double random lengths. It serves to join the crude-producing Bemis Pool with Washington, Kansas, where it will connect with an east-west trunk line from Ft. Laramie, Wyoming. This line crosses three important rivers, including a mile-wide crossing of the Republican River, and five important railroad lines.

NATIONAL SEAMLESS

ACROSS THE KANSAS PLAINS

New National Seamless Pipe Line provides outlet for Bemis Pool

HERE'S another in the long list of important pipe lines constructed entirely of NATIONAL Seamless. Started early in March, this line is now in full operation, providing low-cost transportation for the crude output of Bemis Pool, to a terminal junction in Washington, Kansas.

Contractors and engineers associated with this project report that the quality of NATIONAL Seamless Pipe and the service behind it helped immeasurably in completing the job on schedule. National's organization maintained close check on all shipments, to prevent any delays due to lack of pipe.

This pipe itself helps speed any line-laying project. Its uniform wall strength and ductility make possible strong, accurate bends made right on the job. Its accurately bevelled ends facilitate welding. Its clean, smooth surface assures more perfect coatings and wrappings. And when a line of NATIONAL Seamless Pipe is once laid, you know you've used the best assurance against pressure stress, vibration, earth settlement, floods or other emergency conditions.

NATIONAL Seamless offers these advantages because it is pierced from solid billets of finest quality steel. It has no weld—no long line of potential weakness. "Walls Without Welds." Every length is as strong, as uniform, as perfectly formed as modern metallurgy can produce.

NATIONAL TUBE COMPANY

PITTSBURGH, PA.

United States Steel Export Company, New York

UNITED STATES STEEL

CLEANING AND PRIMING in one operation. Since NATIONAL Seamless Pipe is always clean and smooth when it leaves the mill, it is easy to put in perfect condition ready for coatings and wrappings, where needed.

COATINGS and wrappings were applied to this line where it passed through damp or corrosive soils. NATIONAL Seamless Pipe is peculiarly well adapted to these treatments, because of its uniform, smooth surface.

THE DOPE GANG has finished its work here, leaving in its wake a strong, trustworthy line of NATIONAL Seamless, protected against corrosive soils, ready for years of profitable trouble-free service.

LOWERING into the trench, and finally, covering up, completes the job. This section of the line consists of lengths of NATIONAL Seamless Pipe welded together and bent to conform to the contour of the ground.

needed, allowables have been so distributed that too much oil of one kind is available and not enough of another.

For instance, several major companies asked that the production of low cold test crude be increased. The request by Sinclair Prairie was another example. However, investigation disclosed that in some other fields, the allowables exceeded the nominations and presumably it was this oil that is finding it way to storage.

Storage Increasing

Most of the estimates were presented by Hines Baker, speaking for Humble Oil & Refining Company. He took reports from the United States Bureau of Mines and the American Petroleum Institute as the basis for calculations which indicated the vast quantities of gasoline, more than a hundred million barrels, are now in storage, and also to show that for the past five months, the average daily increase of Texas oil in storage has been 100,000 barrels.

Baker told the commission that these calculations indicated the need for a cut of 100,000 barrels daily in the total Texas allowable if production and demand are to balance. He pointed out that the reductions must be greater if the commission desires to reduce the total amount of oil in storage. While Wynne had urged that the commission attempt to reduce storage, Baker carefully avoided making a recommendation of any kind, but merely stated what he thought would be needed if the commission desired to obtain certain results.

Wynne was the only operator who requested a shutdown of any extended duration. The other operators who attended the hearing freely expressed themselves as opposed to any shutdown of five days or longer, although they were willing to take a cut or additional shutdowns spaced at intervals over a month or two.

Speaking privately, some of the major companies expressed the opinion that the crisis had bigger proportions than was indicated at the hearing. They pointed out that if two million barrels of gasoline were dumped in Eastern markets, a gasoline price war might very well result. At least one of the major marketers was said to be seriously short of crude and anxious to cut the price if this would serve as a means of filling its empty tanks.

Several complaints were registered against the special allowable which the Commission has granted to some fields to supply foreign markets. Since the total exports appeared to be only 60,000 barrels daily, several operators urged that those fields which had received special allowables in the past, bear the full brunt of any cut ordered now.

No one attending the hearing would attempt to estimate the possible export market for the future. All agreed that the domestic demand was firm, but that there might be a still further increase in Illinois production which would affect Texas adversely, since Humble reported that some Illinois oil was now going to storage.

It was also brought out that of the oil going to storage from Texas some 25,000 barrels originates in East Texas, 22,000 in West Texas, 13,000 barrels in the Gulf Coast, and 25,000 barrels from the remainder of the State. This led Humble to urge that a cut be spread over the entire area rather than that the Gulf Coast be penalized for the full amount.

Charles I. Francis, speaking for Crown Central Petroleum Company of Houston, declared that there was no emergency. He insisted emphatically that a shutdown now would be the most specific contribution to Federal control of the oil industry that could be made. While he agreed that there were soft spots he insisted that these could be corrected by reducing allowables in localized areas and a general cut.

"This emergency," said Francis, "was the result of speculation by a few operators in the French market. The commission gave them special allowables to meet those markets. The commission is not to be criticized for this, these increases were granted after hearings."

"However, those operators are receiving the benefits of high production. The way to correct this condition now, if it is to be done equitably, is to cut back those allowables to the point where they were before the increase was ordered."

Maston Nixon, speaking for Southern Minerals Corporation, likewise failed to find a crisis. He thought the Texas oil industry was, on the contrary, in pretty good shape and that only the high gravity low octane crude is concentrating on the Gulf Coast in the Corpus Christi area.

President Approves Action Of Texas Commission

Efforts of the state regulatory authorities to deal promptly and "realistically" with the rapidly fluctuating world oil situation, for which the Texas Railroad Commission last week set an example, were given the approval of President Roosevelt June 18 as members of the Texas body wrestled with the problem raised by the collapse of European markets.

The President urged that the compact states maintain a close watch on the situation after Charles F. Roeser of Fort Worth laid before him the situation created by the collapse of France. Roeser later conferred with Secretary of the Interior Harold L. Ickes, who also has been maintaining constant contact with the situation.

Roosevelt declared that the oil problem must be viewed realistically and that the oil-compact states must be prepared, on a day-to-day basis, to deal with changing events abroad. He explained that on one day a market might be lost to us and that on another day the situation might be reversed, with some other producing country losing its market.

Cut in Louisiana July Allowable Is Hinted

Louisiana Conservation Commissioner B. A. Hardey last week asked purchasers of Louisiana crude to submit anticipated demands for the month of July, the figures to be used in reaching an allowable for next month. The allowable figures are scheduled for release June 24, and the commissioner indicated that a reduction from the June allowable might be expected.

New Mexico May Disregard Texas Shutdown Action

A. Andreas, New Mexico state geologist and member of the State Oil Conservation Commission, last week expressed the opinion that the state will continue to produce as much oil as it can sell, regardless of Texas' steps to reduce production.

He added, however, that "any Texas market situation would undoubtedly have a very important effect upon New Mexico," and might result in curtailment of production in the state.

Vander Leck Resigns As California Oil Umpire

Lawrence Vander Leck last week tendered his resignation as chairman of the Central Committee of California Oil Producers and as state umpire due to disagreement with the committee on fiscal policies connected with administration of the umpire's office. He has been asked to reconsider his action.

Arkansas Boosts Allowable For July and August

The basic allowable for Arkansas was set at 73,000 barrels daily for July and August by the Arkansas Oil & Gas Commission following a hearing last week. This is an increase of 2485 barrels from the June allowable of 70,515 barrels.

The allowable for prorated fields was set at 46,710 barrels, while unprorated areas were fixed at 26,290 barrels. Prorated field allowables are: Atlanta, 3000 barrels; Buckner 2460 barrels; Dorcheat, 1200 barrels; Fouke, 100 barrels; Magnolia, 20,500 barrels; McKamie, 300 barrels; Shuler-Jones, 15,000 barrels; Shuler lime, 2800 barrels; and Village, 1350 barrels.

Courts

Court Holds Commission Orders Beyond Review

Federal Judge R. J. McMillan held last week in the W. D. Ambrose case that Texas Railroad Commission orders are virtually beyond review by the courts. Ambrose, who had seven wells on 13 acres in the heart of the East Texas field, had been granted permits for eight more, and Stanolind Oil & Gas Company, joined by Bailey and Trimble, sought to set aside the commission order allowing the extra wells.

Judge McMillan had originally granted a temporary injunction, and his decision in this trial on the merits was based primarily on the Rowan and Nichols decision of the United States Supreme Court. For that reason, it assumed monumental proportions. The oral opinion handed down by the court is set out in full below:

"I do not believe that the submission of briefs by parties would serve to enlighten the court to any great extent, and that I may as well give my

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"Erie" Improved Stuffing Box. Of heavy malleable iron. Two glands, each 2½" long, provide a bearing area which increases life of both glands and rod. Oil reservoir at top lubricates rod when well pumps off.

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Jarecki Pumping Tee

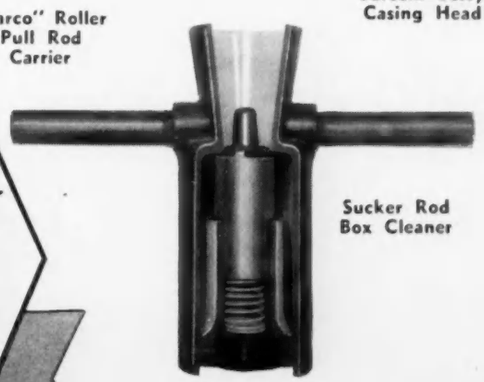
JARECKI Improved Pumping Tee. Is threaded to screw directly onto either regular or upset-thread tubing, thus eliminates swaged nipples, sub-nipples and bushings. Made of heavy malleable iron, it has three times the weight and strength of conventional tees.

"Jarco" Roller Pull Rod Carrier

"Jarco" Roller Pull Rod Carrier. Special lubricating method meters oil from reservoir through a porous bronze bushing, and one filling of oil lasts a year, for heavy duty carrier shown—6 months for regular carrier.

Jarecki Berry Casing Head

JARECKI Improved Berry Casing Head. Of semi-steel for high pressures. Has full-length A. P. I. casing thread and full-length side-outlet threads; inclined set screws arranged perpendicular to bevelled edge of top; circular interior; set screw flange provided with drain holes.



Sucker Rod Box Cleaner

JARECKI-COLLINS Sucker-Rod Box Cleaner. Removes dirt, sand and gritty material from sucker rod boxes and couplings by automatically jetting a cleaning fluid against the threads. Reduces pin breaks.

Descriptive bulletins on request.

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opinion at this time, rather than delay acion.

"In the first place, it is very questionable whether the plaintiff has shown any actual damages here. The evidence would tend to indicate that because of their position on the structure, oil comes under their land from the west, and that they have just as much oil in reserve as they had at first. Of course, their pressure may be depleted. The evidence does not show anything with regard to that in this case.

"In the second place, the evidence is conflicting here as to whether it is more desirable to closer space these wells, or to keep them apart. That is a matter with regard to which the experts have always differed, and the railroad commission has not been consistent with regard to it. They have taken first one attitude and then another; but it is their function to decide that, and not the court's; and under the decision in the Rowan and Nichols case, that we have been discussing, I don't think the court has the authority to revise their decision with regard to it. They may be right, or they may be wrong. If there was no evidence at all in support of what they are doing, then it might be that the court ought to intervene; although even that is questionable under the Rowan and Nichols decision; but certainly, where evidence is conflicting, it is not within the province of the court to substitute his judgment and conscience for their judgment and conscience in the premises; so I think the injunction should be denied, and the interlocutory order now outstanding will be dissolved. Prepare the proper order, counsel."

Rowan and Nichols Given More Time to Appeal

The United States Supreme Court has given Rowan and Nichols 40 days additional time in which to file a motion for rehearing in its suit attacking the validity of the East Texas Proration Order.

The original expiration date for filing was June 28, but 40 days after that date have been added.

Rumor European Situation to Delay Anti-Trust Prosecutions

Recent developments in Europe have given rise to conflicting opinions as to the immediate policy of the United States Department of Justice with respect to the oil industry.

While reports were current in Washington that the department was planning to investigate recent increases in the price of fuel oil at a time when there was no corresponding rise in the cost of crude, and was also about to launch the long-threatened East Coast anti-trust case, it was said in some quarters that the government had abandoned all plans for oil cases in the near future in order not to disturb the industry during the emergency.

The reported fuel-oil case, which may take the form of an anti-trust suit or a grand jury investigation, is said to involve the tanker situation, which was recently the subject of study by a special subcommittee of the House Merchant Marine and Fisheries Committee.

Information which has been compiled in various federal services shows that since the outbreak of the war in Europe, 25 American tankers with a gross tonnage of 165,748 tons, have been transferred to foreign registry, and that there are now pending before the United States Maritime Commission applications for the transfer to Panamanian registry of three Standard Oil Company tankers of approximately 8200 tons each.

The East Coast case, which has been under consideration for some two years, is reported about ready to launch as soon as the department can locate a friendly court.

That suit, it is said, will name something like 200 Eastern oil companies and the American Petroleum Institute, its officers and members, as defendants.

The contradictory report that the department will shelve its oil cases for the present is based on assertions that the industry will be of major importance in the defense program should the situation become more serious and threaten to involve the United States in war.

Pipe Line

Propose $30,000,000 Kansas To Milwaukee Gas Line

Application for authority to construct a 770-mile natural gas pipe line from the Hugoton district of Southwestern Kansas to Milwaukee, Wisconsin, has been made with the federal power commission by The Western Natural Gas Company, headed by Paul Kayser, New York. Estimated cost of the project is $30,000,000, to be paid by sale of stock in the operating company and from mortgages and bonds against property of the company.

The line would serve Milwaukee and other Southern Wisconsin industrial cities, Dubuque, Iowa, and possibly other cities along the route. Wisconsin is now one of the few states without natural gas production or without a natural gas line crossing its boundary.

Propose Michigan Field Storage of Southwestern Gas

The Michigan Public Service Commission concluded hearings last week in the 3-year City of Detroit and Michigan Consolidated Gas Company rate battle, and announced that a new rate schedule would be drafted for release probably in August.

In the final testimony, John M. Batten, general manager of Michigan Consolidated Gas Company, said his company had made initial surveys on a $4,000,000 project for purchase of a Michigan gas field to be used as a reservoir for storing Texas, Kansas and Missouri gas. He declined to name the field under consideration, but said a 167-mile pipe line from Detroit would be required. That distance would include most of the Central Michigan 1300- to 1500-foot Stray sand gas pools now developed.

Batten said the plan was under study as a means of meeting the problem of peak loads in Detroit, and to eliminate stand-by artificial gas manufacturing equipment.

In earlier hearings this year, considerable testimony centered around purported plans to increase present gas delivery capacity through the Panhandle Eastern Pipeline Company and the Michigan Gas Transmission Company systems. Detroit used around 100 million cubic feet of gas the past season, and officials predicted that the load would increase to 125 million cubic feet daily next season.

Buffalo-Syracuse Refined Products Line Contracted

Construction work will start July 15 on Socony-Vacuum Oil Company's refined oil products carrier to extend from its refinery at Buffalo, New York, to Syracuse and intermediate points, involving an aggregate of 172 miles of welded line. The Buffalo-Syracuse unit will consist of 142 miles of 6-inch pipe, with a 15-mile 4-inch lateral to Canadaigua, and a 15-mile 6-inch extension north to Rochester. The latter will also serve as a barge terminal on Lake Ontario. The O. C. Whitaker Company, Fort Worth, was awarded the construction contract last week. Two complete construction crews will be used for the job, which is scheduled to be finished by October 1. J. C. Britton will be superintendent of construction.

Propose West Virginia to New York Gas Transmission

Application for authority to operate a natural gas line across Pennsylvania to bring gas from West Virginia fields to industrial centers in New York has been filed with the Pennsylvania Public Utility Commission.

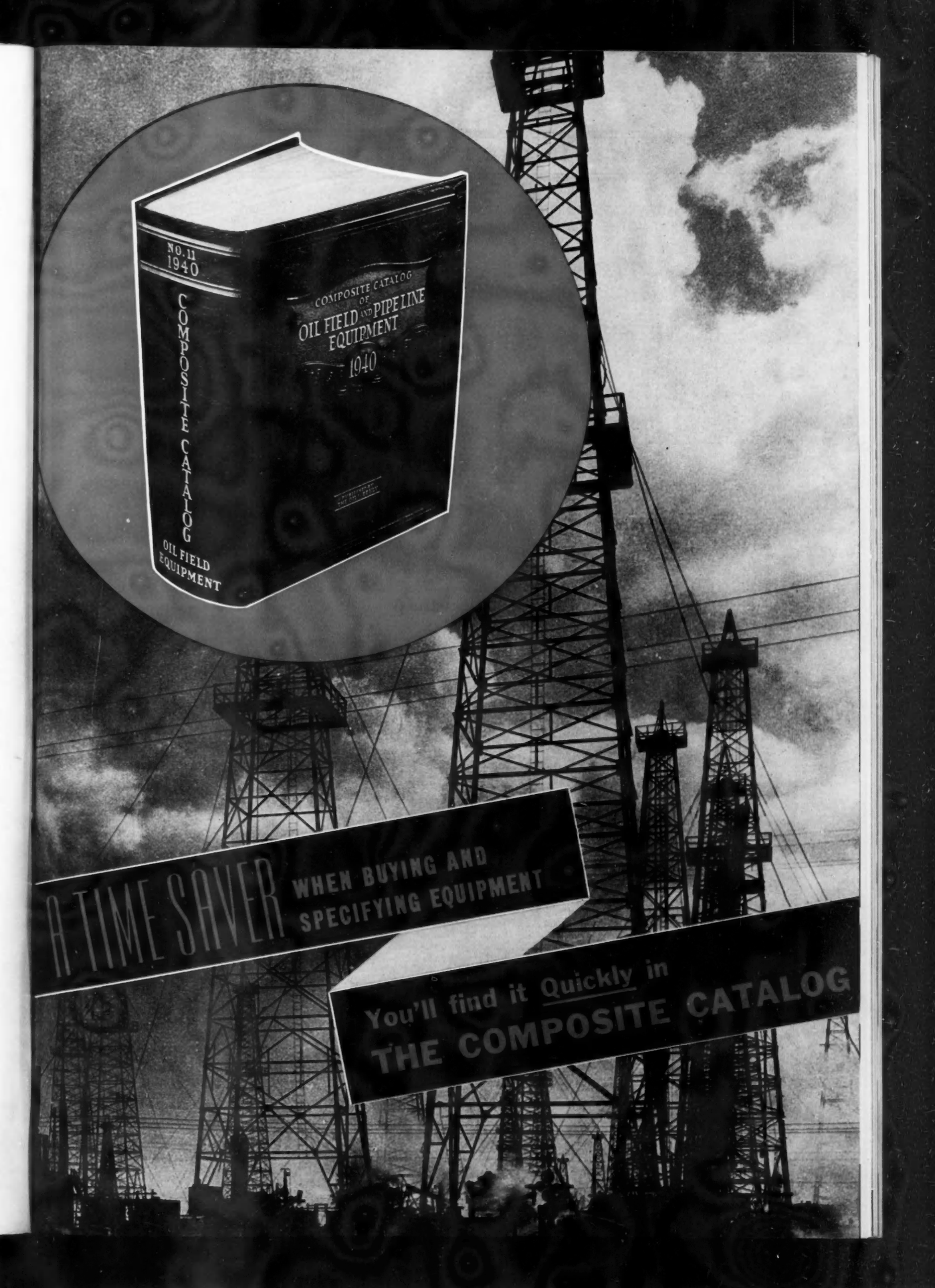
The proposed line would bring gas to New York to supplement a dwindling supply in the Pennsylvania-New York-Oriskany area. It would be operated by The Manufacturers' Light & Heat Company, Manufacturers' Gas Company and Pennsylvania Fuel Supply Company, and would bring gas of United Fuel Supply Company in West Virginia to the Home Natural Gas Company in New York. All companies are affiliates of the Columbia Gas & Electric Company.

Wasson Field Line One-Third Completed

Construction work on Basin Pipe Line Company's 96-mile 6-inch crude line from the Wasson field, West Texas, to the Big Spring refinery of Cosden Petroleum Corporation, is one-third completed. The 11-mile 4-inch field gathering system was completed last week, and will be placed in operation as soon as field station tanks are available. The carrier is scheduled to be completed by mid-July, providing a market for 5000 barrels of crude daily.

Complete Survey for West Kansas Gas Line

Cities Service Gas Company has completed right-of-way survey for a 60-mile 12-inch natural gas pipe line from the Cunningham field, Kingman and Pratt counties, Kansas, to Wichita.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MEN IN THE INDUSTRY'S NEWS

SHELL COMPANY ADVANCES TWO OFFICIALS WITH CONCENTRATION OF OPERATING HEADQUARTERS IN HOUSTON

T. E. SWIGART AND A. J. GALLOWAY TAKE OVER NEW DUTIES

SHELL OIL COMPANY last week announced promotion of T. E. Swigart, vice president in charge of operations in the Texas Gulf area, to president of Shell Pipe Line Corporation, and A. J. Galloway, to the position of vice president in charge of all production activities east of the Rocky Mountains. Both will make their headquarters in Houston with transfer this fall of head offices of the company from St. Louis to New York.

Born in California in 1895, Swigart's first work in the oil industry was as a laborer on a pipe-line gang during the summer months while going to school. He joined Shell Petroleum Corporation in 1915, leaving to join the United States Bureau of Mines in 1919. When his work with the government department terminated in 1923, he became consulting petroleum engineer for Attock Oil Company and Indo-Burma Petroleum Company, in India and Burma. A year later he became chief production engineer and assistant field superintendent for Shell Petroleum Company of California, and in 1932 he became vice president of the company in charge of operations handled from Houston. In 1937, he went to St. Louis as assistant to the president and general manager, later returning to Houston. In his new position he succeeds R. P. Bascom, St. Louis, who is retiring from active service after 22 years with Shell Oil Company.

Galloway, who started his career as geologist in California in 1925, went to

T. E. SWIGART

A. J. GALLOWAY

San Francisco as assistant in the president's office of Shell Oil Company in 1928. He was transferred to the manufacturing department in 1930 as assistant to the manager, returning to the president's office in 1932. He was transferred two years later to Shell Petroleum Corporation as assistant to the president at St. Louis. He was moved to Tulsa in 1936 to direct Mid-Continent operations, and came to Houston to relieve Swigart in 1937 when the latter went to St. Louis. In his new position, he takes over Swigart's production activities in addition to those in other areas which had been under his supervision.

TOM S. KNAPP, Burnips field office manager for Commonwealth Pipe Line Company the last two years, resigned last week to join Chartiers Oil Company, Pittsburgh, as Michigan resident geologist. He will make his headquarters in Mt. Pleasant.

C. A. HILL, field superintendent for Magnolia Petroleum Company in the Alice, Texas, district, will be transferred effective July 1 to Wewoka, Oklahoma, to supervise operations in the Wewoka and Earlsboro districts, which are to be consolidated. He will be succeeded at Alice by F. R. Corbell, Lovington, New Mexico, district superintendent, who will be relieved by O. H. Stout, who has been district superintendent at Wewoka for a number of years.

WILLIAM D. HOSKINSON, field superintendent for Magnolia Petroleum Company in the Earlsboro, Oklahoma, district, will retire July 1 under the company's pension plan. He has been engaged in the producing branch of the oil business 40 years, starting with a Standard Oil unit in August, 1900. He switched to the South Penn Oil Company in November, 1906, and terminated this connection January 5, 1916, to join the Magnolia Petroleum Company.

R. W. BOND, production manager for Shell Oil Company at Tulsa, landed at New York June 6 after a business and vacation trip in South America. He is expected back this week.

E. V. FORAN, W. F. Knode and Byron B. Boatright, Houston petroleum and natural gas engineers, have dissolved the firm of Parker, Foran, Knode & Boatright, to form a new partnership with P. C. Dixon under the firm name of Foran, Knode, Boatright & Dixon.

D. MARTIN, formerly with a seismograph party in the Weatherford, Texas, area for Amerada Petroleum Corporation, has returned to the Tulsa office.

HARLAN TAYLOR, head of Petty Geophysical Company's Houston office, is commuting between the Texas city and Mississippi as a result of the intensive exploration underway in the eastern state.

H. L. HAAG, Midland, Texas, has been named assistant chief scout for Shell Oil Company at Houston, succeeding Bart Jones, transferred to the land department.

RALPH G. ATKINSON, engineer for Standard Oil Company of Ohio, has been transferred from Cleveland to Euclid, Ohio.

H. E. SLATER, purchasing agent for foreign operations of Gulf Oil Corporation, whose headquarters are in New York, was a visitor in Houston last week.

HARRY NORRIS, scout in the Shreveport district for Sinclair Prairie Oil Company, has been transferred to Mattoon, Illinois. He was succeeded in Shreveport by Jeff Hawks, transferred from Tyler, Texas.

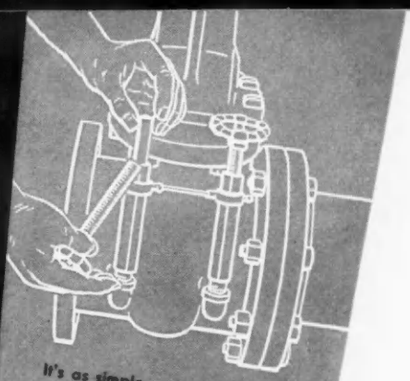
W. I. INGHAM, Tulsa consulting geologist, is doing surface geology in North Dakota, making his headquarters at Bismarck.

G. B. HARDISON, district geologist for Shell Oil Company, has been transferred from Wichita Falls to Tulsa to take over the Oklahoma District.

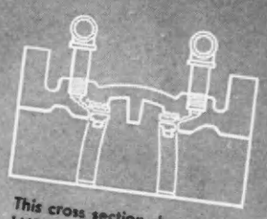
A. J. FOGALEY, who has been in the record department of the Corpus Christi Division of the Texas Railroad Commission, has resigned his position to enter another field.

JACK SUMMERS, 66, pioneer eastern Oklahoma oil operator, died at his home in Muskogee June 13 after a long illness.

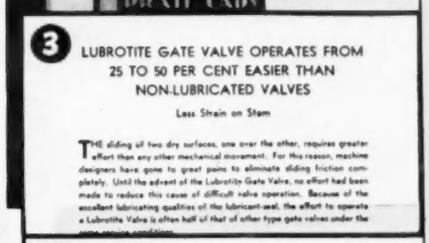
VEZIO CAMBI, vice president and general manager for Societa Petrolifera Italiana, Fornovo Taro, Parma, Italy, died June 8 in New York following a brief illness. He came to the United States in May, planning to tour Mid-Continent and Gulf Coast oil fields, and was stricken by a heart attack.



It's as simple as turning a small valve hand-wheel to "load" Lubrotite Gate Valves for a long period of service.



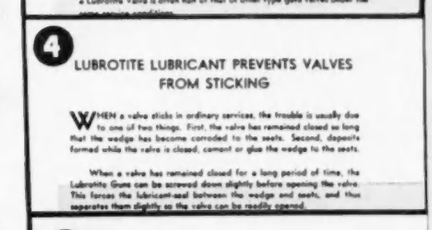
This cross section shows how LUBROTITE design carries the special LUBROTITE lubricant directly to the faces of the wedge and seat.



3 LUBROTITE GATE VALVE OPERATES FROM 25 TO 50 PER CENT EASIER THAN NON-LUBRICATED VALVES

Less Strain on Stem

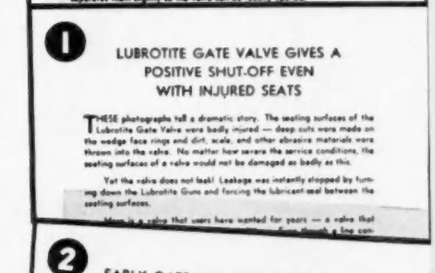
THE sliding of two dry surfaces, one over the other, requires greater effort than any other mechanical movement. For this reason, machine designers have gone to great pains to eliminate sliding friction completely. Until the advent of the Lubrotite Gate Valve, no effort had been made to reduce this cause of difficult valve operation. Because of the excellent lubricating qualities of the lubricant-seal, the effort to operate a Lubrotite Valve is often half of that of other type gate valves under the same service condition.



4 LUBROTITE LUBRICANT PREVENTS VALVES FROM STICKING

WHEN a valve sticks in ordinary services, the trouble is usually due to one of two things. First, the valve has remained closed so long that the wedge has become corroded to the seats. Second, deposits formed while the valve is closed, cement or glue the wedge to the seats.

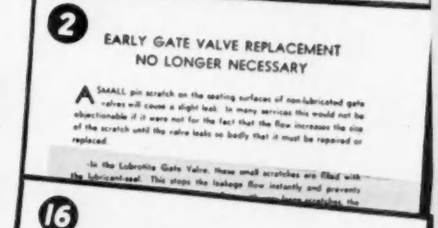
When a valve has remained closed for a long period of time, the Lubrotite Guns can be screwed down slightly before opening the valve. This forces the lubricant-seal between the wedge and seats, and thus separates them slightly so the valve can be readily opened.



1 LUBROTITE GATE VALVE GIVES A POSITIVE SHUT-OFF EVEN WITH INJURED SEATS

THESE photographs tell a dramatic story. The seating surfaces of the Lubrotite Gate Valve were badly injured — deep cuts were made on the wedge face rings and dirt, scale, and other abrasive materials were thrown into the valve. No matter how severe the service conditions, the seating surfaces of a valve would not be damaged as badly as this.

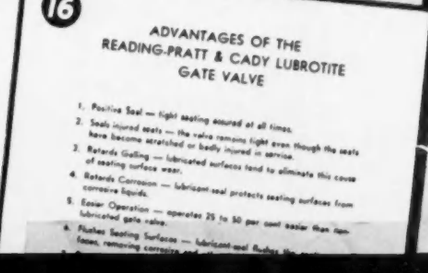
Yet the valve does not leak! Leakage was instantly stopped by turning down the Lubrotite Guns and forcing the lubricant-seal between the seating surfaces.



2 EARLY GATE VALVE REPLACEMENT NO LONGER NECESSARY

A SMALL pin scratch on the seating surfaces of non-lubricated gate valves will cause a slight leak. In many services this would not be objectionable if it were not for the fact that the flow increases the size of the scratch until the valve leaks so badly that it must be repaired or replaced.

In the Lubrotite Gate Valve, these small scratches are filled with the lubricant-seal. This stops the leakage flow instantly and prevents



16 ADVANTAGES OF THE READING-PRATT & CADY LUBROTITE GATE VALVE

1. Positive Seal — tight seating assured at all times.
2. Seals injured seats — the valve remains tight even though the seats have become scratched or badly injured in service.
3. Retards Galling — lubricated surfaces tend to eliminate this cause of seating surface wear.
4. Retards Corrosion — lubricant-seal protects seating surfaces from corrosive liquids.
5. Easier Operation — operates 25 to 50 per cent easier than non-lubricated gate valve.
6. Flushes Seating Surfaces — lubricant-seal flushes the

F GATE VALVE MAINTENANCE IS HIGH

TRY *Lubrotite* GATE VALVES

● With Reading-Pratt & Cady Lubrotite Gate Valves in your line, an occasional short turn of the LUBROTITE hand wheel makes certain a tight seat, protects seat and wedge from corrosion, prevents jamming or sticking—even provides a tight seat in valves so old that natural wear has deeply scarred the faces of wedge and seat.

If your gate valve maintenance is high, get our recommendations for using LUBROTITE Gate Valves—the Reading-Pratt & Cady Gate Valve *plus* LUBROTITE.

Get a copy of this well illustrated 16-page Lubrotite booklet

There's not too much to read in this 8½ x 11, 16-page booklet. Pictures do most of the talking—show conditions that LUBROTITE Gate Valves prevent and overcome—show the easily understood principles that govern LUBROTITE operation—indicate where LUBROTITE Gate Valves save you money. Write Reading-Pratt & Cady, Bridgeport, Connecticut, for your copy.

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AMERICAN CHAIN & CABLE COMPANY, Inc.

[*Continued from page 14*]

this time last year the rates were under 20 cents a barrel for movement from the Gulf to the North Atlantic, although those rates were sub-normal.

Existing Pipe Lines Extensive

Nevertheless, large capacity would be available for moving crude oil by pipe line across the Southwest, Middle West, and Appalachian region, to the populous and industrial Middle Atlantic area. For it is across that part of the country that the world's most extensive network of pipe lines is located. Several systems extend all the way across the described territory and could be operated as through-conduits, although changes would be required in the physical set-up to provide continuous flow northeastward. The pipe line systems are particularly extensive from the Texas Gulf Coast to the industrial centers of the St. Louis, Chicago, and Indiana-Ohio regions.

Indication that gasoline pipe lines from the Gulf Coast to the Atlantic Seaboard have not been considered practicable is given in the circumstance that no such continuous lines ever have been built, although numerous less extensive lines have been constructed in areas of large consumption in the Middle West and the East.

On the gasoline lines, the rates are the same as on railroad tank car shipments. From Oklahoma points to Chicago, for instance, the rate is 90 cents a barrel.

Lines Expanded Economically

Any question as to a choice between building a new pipe line over a particular route or increasing the capacity of an existing line is ready-answered in the normal procedure of pipe line companies. It is common practice to expand pipe line capacity by adding pump stations or laying another line of pipe alongside the original line. In some circumstances it might be more economical to start at scratch and build a new line; but in looping and adding pump stations, there are obvious economies, including those involved in right-of-way costs, surveys, maintenance, and so forth.

That it would be possible to provide largely increased pipe line capacity between the Southwest and the Northeast by looping existing lines or by adding pump stations is indicated by fast records made in such projects. One major company has just increased the capacity of its line from West Texas to the Gulf Coast in 90 days by the addition of pumping facilities.

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CUTTING TOOLS AND SPEARS

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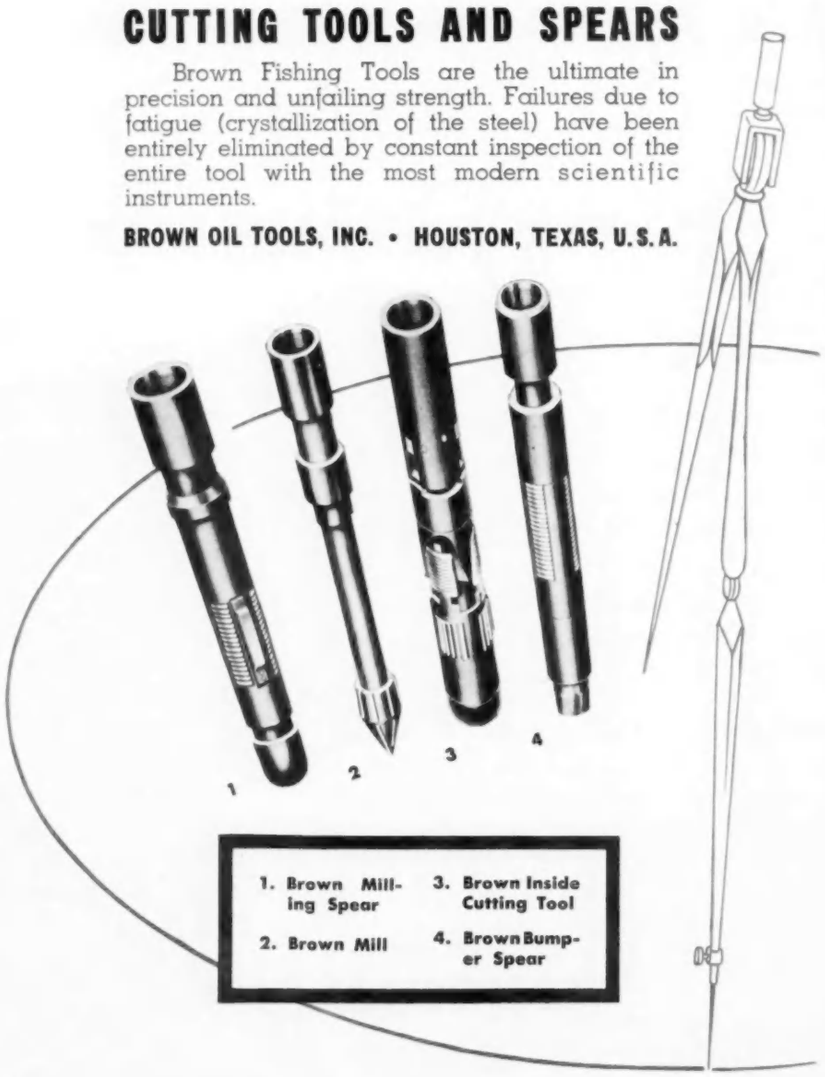

1. Brown Milling Spear
2. Brown Mill
3. Brown Inside Cutting Tool
4. Brown Bumper Spear

Dr. Robert E. Wilson

[*Continued from page 12*]

manufacturing in 1929-30, later becoming a director and then vice president in charge of research and development. He became vice chairman of Pan American Petroleum and Transport Company in 1935, and is now president of that company.

He is a member of the American Chemical Society, American Institute of Chemical Engineers, Society of Automotive Engineers, American Society for Testing Materials and the American Petroleum Institute. Dr. Wilson received the Chemical Industry Medal for 1939.

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Stocks of Gasoline and Crude Oil Are Reduced

Reductions in gasoline and crude oil stocks were favorable highlights of the latest statistics of the industry, covering the week ended June 15. Light fuel oils continued their seasonal stock build-up, while crude oil production, crude runs to stills, and residual fuel oil stocks remained virtually the same.

Gasoline stocks showed a further reduction after dropping below the 100,000,000-barrel mark the preceding week for the first time since March 9, 1940. The stocks of 97,660,000 barrels on June 15 were the lowest since February 24. This represented a decrease of 1,811,000 barrels from the preceding week and stocks dropped to 18.7 percent in excess of last year's storage.

Production and Runs

Crude oil production remained virtually unchanged from preceding weeks. Only a 750-barrel decrease was reported by the American Petroleum Institute. This leveling off came after an increase of 163,000 barrels the preceding week. Production was still 195,900 barrels over the Bureau of Mines estimated market demand and 10.7 percent in excess of production for the same period in 1939.

Crude runs to stills in the week of June 15 were 20,000 barrels in excess of those in the preceding week. They averaged 3,620,000 barrels a day and were 3.7 percent in excess of runs for the same period in 1939.

Stocks of crude oil were down 1,956,000 barrels for the week of June 8 from those reported for the week of June 1. Total stocks in storage as reported by the Bureau of Mines were 259,706,000 barrels for the week of June 8. This represented a decrease of 5.5 percent in stocks from those for the similar period the past year.

Light fuel oil stocks continued their seasonal build-up for next winter's supply with an increase of 1,277,000 barrels in the week ended June 15, having expanded to 31,886,000 barrels. This represents an increase of 6.8 percent over the supplies held at this time last year.

Heavy fuel oil stocks decreased 247,000 barrels to a total of 104,419,000 barrels. That withdrawal was heavier than recent reductions, and was due principally to increased domestic industrial demand and consumption, and in part to the conversion of some heavy fuel oil stocks to road oil. The heavy fuel oil stocks are down 6.7 percent from last year.

DRILLING STATISTICS CORRECTION

In these columns June 3, page 45, it was erroneously indicated that the 12,244 new wells completed in the United States in the first 5 months of 1940 were 28.2 percent in excess of the 10,353 finished in the corresponding months of 1939. The increase actually amounted to 18.2 percent.

Changes in Product Prices Only Minor

With exception of a kerosene markdown scattered local changes, product prices the past week remained generally the same as previously. Kerosene prices dropped generally throughout the country, while Atlantic Coast prices on all products except heavy fuel oils sagged slightly in reflection of reductions in tanker rates. Pennsylvanian lubricants also dropped slightly. The only increases in prices were uplifts in Mid-West and Oklahoma heavy fuel oils.

Gasoline prices remained steady with exception of a ¼-cent per gallon drop for low octane gasolines at Atlantic Coast points. A sharp decline in gasoline stocks, coupled with warmer weather, wheat harvesting, and speculative buying by jobbers to escape payment of forecast increased federal gasoline taxes, definitely strengthened the gasoline market this past week. Demand is on the upgrade, and shipments of gasoline from the Mid-Continent have increased recently. No material increase in gasoline prices is regarded as likely until further progress is made in reducing surplus gasoline stocks in storage although the situation on the whole seems to be definitely strengthened by recent trends.

Kerosene demand was only fair the past week and movement continued to be too slow for a good market. This was reflected by a general price reduction of ⅛-cent per gallon throughout the country with exception of the Atlantic Coast, where larger declines occurred.

Speeding up of industrial activity was reflected in a strengthening of demand for heavy fuel oils. Refiners reported a good demand for these oils throughout the country. One plant owner reported that his contract customers already had attempted to take out their August commitments. This increase in industrial demand as well as from the railroads reflected the only price increase of the week, low-range quotations in the Mid-West and Oklahoma districts on No. 6 fuel oil having risen ½ cent per gallon. Atlantic Coast prices on heavy fuel oils remained the same after a 15 cent cut the preceding week.

Mid-Continent lubricating oil prices remained unchanged this past week after slight drops the preceding week. Western Pennsylvania lubricant prices continued their price drop this week after similar drops the preceding week.

Pennsylvania Crude Cut

The further reduction in Pennsylvania grade crude June 18 was not particularly surprising, as some observers had doubted that the 25-cent cut of May 22 would be adequate to bring the crude postings down in line with prices of lubricants, which had been declining since the beginning of the year.

Moreover, some refiners were of the opinion that Pennsylvania grade crude prices might have to be cut even lower than in the June 18 schedule, unless product prices showed early improvement.

The postings were cut back through the June 18 revisions to the levels that prevailed last October. New prices included $2.25 a barrel for Bradford-Allegany crudes, $1.90 for Southwest Pennsylvania oil, and $1.84 for Eureka, West Virginia, crude.

PRODUCT PRICES

REFINED GASOLINE

	Range Late Last Week (Cents a gal.)		Changes from week Before	
Oklahoma Refineries:				
60 Octane and under	4	4¼	...	...
63-66 Octane	4¼	4⅝	...	...
72-74 Octane	4⅝	5¼	...	...
Mid-Western Tank Car:				
60 Octane and under	4	4¼	...	...
63-66 Octane	4⅜	4⅝	...	...
72-74 Octane	4⅝	5¼	...	...
New York Harbor:				
70 Octane and under	6	6¼	—¼	...
72-74 Octane	6	6¾	...	...

NATURAL GASOLINE

Grade 26-70:				
F.O.B. Group 3	1½	1½	...	...
F.O.B. Breckenridge, Texas	1¼	1¼	...	...

KEROSENE

Oklahoma Refineries:				
41-43 water white	3⅞	4¼	—⅛	...
42-44 water white	4	4⅝	—⅛	...
Mid-Western Tank Car:				
41-43 water white	3⅞	4¼	—⅛	...
42-44 water white	4	4⅝	—⅛	...
New York Harbor	5.4	5½	...	—⅛

RANGE OIL

At Oklahoma Refineries	3⅝	3⅞	...	...
In Mid-Western Market, Group 3 basis	3¾	3⅞	...	...

LIGHT FUEL OILS

Oklahoma Refineries:				
No. 1 straw	3⅝	3⅝	...	...
No. 3	3¼	3⅜	...	...
Mid-Western Tank Car:				
No. 1 straw	3½	3⅝	...	...
No. 3	3⅛	3⅜	...	...
New York Harbor:				
No. 1	5.4	5½	...	—⅛
No. 3	4.7	4¾	...	—⅜

HEAVY FUEL OILS

(Per Barrel)

	Range Late Last Week (Cents a gal.)		Changes from week Before	
Oklahoma Refineries:				
No. 6	55	55	+½	...
Mid-Western Tank Car:				
No. 5	75	75	...	...
No. 6	50	55	+½	...
New York Harbor:				
No. 5	$1.55	$1.70	...	...
No. 6	1.35	1.35	...	...

BUNKER C FUEL OIL

(Per barrel, ships bunkers)

Gulf Coast	$ .80	$ .95	...	...
New York Harbor	1.35	1.35	...	...

DIESEL OIL

(Per barrel, ships bunkers)

Gulf Coast	$1.50	$1.70	...	...
New York Harbor	1.95	1.95	...	—.25
Los Angeles Basin, 27 gravity	1.15	1.40	...	...

LUBRICATING OIL

Oklahoma Refineries:				
Bright Stock, 150-160 viscosity at 210°, 10-25 pour test	16½	18½	...	...
Neutral oil, pale, No. 3 color, 150 viscosity at 100°, 0-10 pour test	9½	11¼	...	...
Western Pennsylvania:				
Bright stock, 145-166 viscosity, at 210°, 25 pour test	17	18	—1	—1
Neutral Oil, No. 3 color, 150 viscosity, at 70°, 25 pour test	19	20	—1	...

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KIS	6″	3″ to 5″	800 to 285	73.2 to 214
KLS	10″	2½″ to 7″	1000 to 130	58 to 532
KMS	10″	3″ to 7″	1000 to 260	84 to 526
KPS	10″	3½″ to 7½″	1500 to 340	120 to 607

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Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1937:						
August 28	[5]3,731,450	3,425,000	309,506,000	66,997,000	112,111,000	
September 25	3,666,300	[5]3,455,000	307,974,000	65,620,000	116,472,000	
1938:						
March 19	3,433,550	3,080,000	306,380,000	[5]93,192,000	122,067,000	
November 12	3,243,250	3,180,000	273,394,000	[6]67,551,000	34,175,000	120,491,000
December 10	3,245,100	3,150,000	[6]269,509,000	68,687,000	32,068,000	118,711,000
Decembe 31	3,201,450	3,115,000	273,024,000	71,695,000	29,082,000	115,741,000
1939:						
January 28	3,248,250	3,235,000	271,763,000	77,279,000	26,583,000	112,766,000
February 25	3,328,850	3,185,000	271,758,000	84,597,000	23,419,000	110,252,000
March 25	3,382,350	3,225,000	273,915,000	87,561,000	21,487,000	107,551,000
April 22	3,526,700	3,280,000	277,156,000	[7]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
May 27	3,585,250	3,405,000	278,289,000	84,152,000	26,992,000	109,386,000
June 24	3,452,800	3,430,000	272,297,000	81,733,000	30,239,000	111,726,000
July 29	3,539,100	3,460,000	268,513,000	77,887,000	34,900,000	114,053,000
August 5	[1]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[1]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
September 30	3,658,200	3,560,000	233,023,000	71,168,000	38,081,000	115,466,000
October 7	3,435,850	3,505,000	231,564,000	[6]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[2]3,650,000	[2]229,127,000	72,122,000	39,358,000	115,060,000
October 28	3,498,500	3,520,000	230,453,000	72,660,000	39,562,000	114,786,000
November 25	3,818,100	3,510,000	231,811,000	75,595,000	38,527,000	112,106,000
December 30	3,545,000	3,445,000	237,742,000	80,985,000	34,184,000	106,680,000
1940:						
January 27	3,611,600	3,470,000	237,339,000	87,914,000	27,407,000	103,015,000
February 24	3,732,100	3,490,000	240,836,000	96,719,000	25,390,000	103,419,000
March 30	3,841,250	3,585,000	250,561,000	101,370,000	23,778,000	105,081,000
April 20	3,858,550	3,535,000	254,881,000	[1]102,817,000	24,779,000	103,323,000
April 27	3,845,250	3,555,000	256,670,000	102,452,000	24,997,000	102,552,000
May 18	3,835,100	[1]3,665,000	257,647,000	101,015,000	27,345,000	104,245,000
June 1	3,651,650	3,651,350	261,662,000	100,353,000	29,533,000	104,768,000
June 8	3,816,950	3,600,000	259,706,000	99,471,000	30,609,000	104,666,000
June 15, 1940	3,816,200	3,620,000	.....	97,660,000	31,886,000	104,419,000
June 15, 1939	3,447,050	[8]3,490,000	[4]274,692,000	82,244,000	29,845,000	111,924,000
Change in past year Percent	+10.7	+3.7	—5.5	+18.7	+6.8	—6.7

[1] All time peak. [2] Peak for 1939. [3] Lowest since April, 1922. [4] Stocks, June 10, 1939. [5] Peak prior to 1939. [6] Lowest for year. [7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California. [8] June, 1939 daily average. [9] Lowest since October, 1922, due to the shutdown of six Mid-Continent States.

Illinois Production Passes 500,000-Barrel Mark

Illinois again took the spotlight in last week's crude oil production as output soared to a new all-time record of 505,900 barrels a day. This was an increase of 34,800 barrels over the previous week, which also had shown a heavy gain.

The Illinois rise was the deciding factor in the increase in United States crude oil production for the week of June 22 to 3,848,075 barrels a day, 16,725 barrels a day more than in the previous week. This amount was 227,775 barrels a day in excess of the United States Bureau of Mines estimate of daily demand for June.

A heavy increase in production in the Centralia field was responsible for the new record production in Illinois. Large Devonian lime completions jumped Centralia production from 65,000 barrels a day to 101,150 barrels a day. Up until eight months ago, when the Devonian was first discovered, the field was producing only around 5000 barrels a day from shallow production. Further discoveries in the Trenton lime and more extensive development of the Devonian zones should cause the production of the Centralia field to rise considerably higher in the near future. At present it has risen to second place in the state's production, surpassing Louden for this position and being exceeded only by the Salem field. At present, Illinois production is 110,300 barrels daily in excess of the U. S. Bureau of Mines estimated market demand for the state. The prevalent idea that Illinois would soon reach it's peak production and begin to decline seems to be farther from realization than before as new developments continue to take place.

United States Crude Oil Production

Estimates Compiled by THE OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (June)	State Allowable in June	BARRELS DAILY FOR WEEK ENDED June 15	BARRELS DAILY FOR WEEK ENDED June 22
TEXAS—				
Texas Panhandle	.....	.....	68,300	67,100
North Texas	.....	.....	104,900	102,200
West Central Texas	.....	.....	33,500	32,900
West Texas	.....	.....	237,800	238,800
East Central Texas	.....	.....	84,100	82,100
East Texas Field	.....	.....	397,200	397,300
South Texas	.....	.....	238,400	244,200
Texas Gulf Coast	.....	.....	236,600	235,700
Total Texas	1,344,600	1,355,530*	1,400,800	1,400,300
CALIFORNIA—				
Long Beach	.....	.....	45,300	45,000
Midway-Sunset	.....	.....	56,800	43,600
Kettleman Hills	.....	.....	47,800	49,100
Wilmington	.....	.....	86,200	86,200
Others	.....	.....	401,100	382,300
Total California	593,700	592,000†	637,200	606,200
OKLAHOMA—				
Oklahoma City	.....	.....	81,900	102,300
Seminole Area	.....	.....	97,500	105,650
Others	.....	.....	227,250	211,375
Total Oklahoma	408,600	408,100	406,650	419,325
ILLINOIS—				
Salem	.....	.....	241,500	243,300
Centralia	.....	.....	.....	101,150
Louden	.....	.....	73,000	72,800
Other New Pools	.....	.....	146,650	78,350
Old Pools	.....	.....	9,950	10,300
Total Illinois	395,600	.....	471,100	505,900

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (June)	State Allowable in June	BARRELS DAILY FOR WEEK ENDED June 15	BARRELS DAILY FOR WEEK ENDED June 22
LOUISIANA—				
North Louisiana	.....	.....	69,500	69,200
South Louisiana	.....	.....	225,800	223,100
Total Louisiana	274,700	278,566	295,300	292,300
KANSAS	159,000	159,000	170,650	178,350
NEW MEXICO	106,700	106,700	106,700	107,500
EASTERN STATES—				
Pennsylvania Grade	49,400	.....	74,500	74,750
Others, Eastern	49,000	.....	19,500	19,500
Total Eastern States	98,400	.....	94,000	94,250
MOUNTAIN STATES—				
Wyoming	73,000	.....	73,800	69,500
Montana	18,300	.....	17,900	17,850
Colorado	4,000	.....	3,300	3,400
Total Mountain States	95,300	.....	95,000	90,750
MICHIGAN	62,000	56,000	59,100	57,100
ARKANSAS	66,700	70,515	71,800	71,900
INDIANA	8,000	.....	12,700	12,500
MISSISSIPPI	7,000	.....	10,150	11,600
NEBRASKA	.....	.....	200	100
‡Total 8 Prorated States	3,016,000	3,006,411	3,148,200	3,132,975
Total United States	3,620,300	.....	3,831,350	3,848,075

* Net daily average, considering general shutdown June 1, and 14 shutdown days in East Texas field.
† Recommendation of Central Committee of California Oil Producers.
‡ Texas, California, Oklahoma, Louisiana, Kansas, Arkansas, Michigan, New Mexico.

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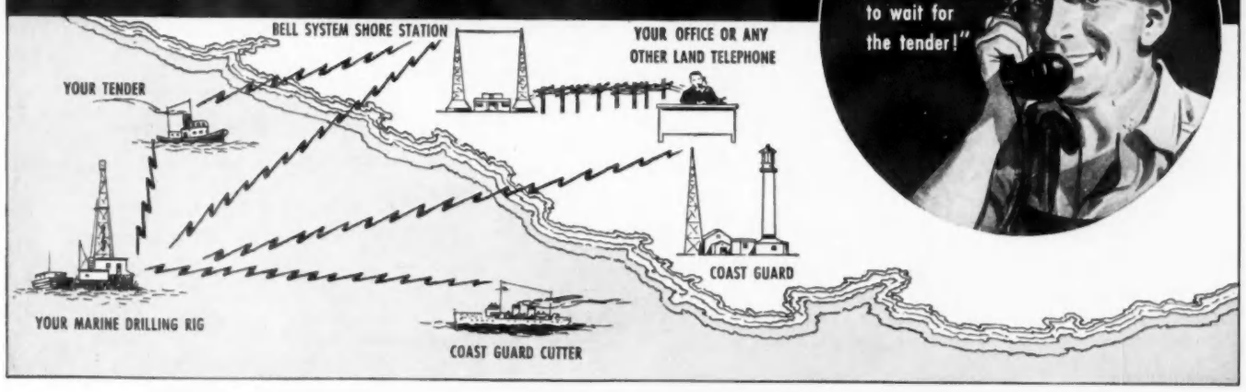

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WORLD-WIDE DEVELOPMENTS

By WM. V. GROSS, Associate Editor

War

Fields in Iran and Iraq Areas May Become Objectives

Oil fields, refineries, pipe lines and terminals of Iran, Iraq, Syria and Transjordan are likely to feel the brunt of intense military action soon, whether the peace terms of Hitler and Mussolini are acceptable to France or not, if England sticks to her resolve to fight to the bitter end.

The sphere of aerial combat and bombing has spread to Aden, on the southwestern tip of Arabia, and to points of eastern Africa. Oil and gasoline storage facilities of both sides have been mentioned frequently as objectives of bombing squadrons. But prevailing opinion seems to be that the combatants have up to this time merely been feeling each other out in eastern Africa and western Arabia.

Berlin dispatches state Germany began the war in September with six months' supply of oil and gasoline, and that these reserves were increased during winter months to eight months' supply. Berlin sources state the Polish campaign paid for itself in additional oil and gasoline reserves and actually allowed the Germans to refrain from drawing on the six months' reserves. The same sources claimed that increased synthetic production in Germany, shipments from Rumania and Russia, plus stocks captured in Belgium and Holland, have increased the reserve amount to eight months' supply. They say these reserves are just beginning to be drawn upon.

The Allied version is that Germany did not get a great deal of oil from Belgium and the Netherlands, and that much of the stored fuel and lubricants was either destroyed by retreating defenders of those two buffer states or by subsequent bombing by Royal Air Force and French planes.

Neutral opinion is that while the German reserves probably are not as great as the Berlin sources indicate, the destruction thereof by Allied bombing squadrons probably has not been as great as London press dispatches indicate. In either event, the war has progressed far enough for both sides to admit that gasoline and lubricant consumption probably have been greater per hour of intense fighting than previous military estimates reflected, because of the extraordinary widespread usage of mechanized equipment on land and in the air. Both sides, moreover, must feel, if Churchill's government continues to hold the confidence of the British public, that present available reserves of fuel and lubricants, regardless of the amounts involved, will not be sufficient to withstand the demands of protracted fighting.

Rumania cannot furnish all of Germany's requirements. Russia, in the light of recent diplomatic and military events, probably would not if so doing would in any remote way jeopardize maneuverability of her own forces. And as neither Italy nor Germany is in a position to depend upon domestic production or on production from colonies, an attack on enemy crude sources or transportation routes therefrom obviously is indicated.

Two great oil companies will suffer soon if the tide of battle is not turned, and there is nothing on the horizon to indicate that England can accomplish anything in this direction overnight. They are Anglo-Iranian Oil Company and Iraq Petroleum Company, and their related organizations. It is not improbable that the sphere of military actions may even spread to the Kingdom of Kuwait and Saudi Arabia, which are well within bombing range of Italian planes based in eastern Africa. Egypt's two fields, Ras Gharib and Hurghada, to say nothing of storage tank farms along the Suez, also constitute attractive objectives for Axis planes.

The situation in Rumania, whose oil supplies have been the object of countless conferences with German and British trade negotiators, is precarious. At the beginning of hostilities French and British interests were fairly confident of obtaining most of Rumania's exportable oil. Developments of the last month have cut off supplies of Rumania to England. Fulfillment of Germany's quota of oil recently was made secondary to taking care of the army's needs by recent action of the Rumanian cabinet. Now the country finds herself in the position of having lost the British trade and of not knowing whether she is to become host first to the Nazi or the Soviet army. Against either Rumania probably would wage a losing battle, for material aid from Britain or from France, if the latter cannot stomach the Axis terms of peace, is nearer something to be dreamed of than realized. Her only chance of stemming invasion would be that resulting from Balkan solidarity, and the majority of the Balkans are openly soliciting the good will and approbation of Russia, which still regards part of Rumania as rightfully hers.

Colombia

Six Tests Completed on La Cira Structure

Tropical Oil Company completed six tests on the La Cira structure last month, bringing the total number of tests drilled on this and the Infantas structure, also controlled by this company, to 1091. Production of the company totaled 1,949,738 barrels, of which 227,058 barrels were processed at the Barrancabermeja refinery.

Columbian Petroleum Company operating on the Barco concession, had 9 rigs running at La Petrolea, and one each at Rio de Oro, Socuavo, Tres Bocas and Carbonera. Most of the work during May was on deepening operations, and no new wells were completed. Cumulative completions for La Petrolea total 87, for Rio de Oro 11, and for Carbonera 2.

Socony-Vacuum Oil Company de Colombia continued drilling Las Monas 2, on the Restrepo concession, and announced abandonment of the Peralonso and Narino 3 tests on the same concession. Shell of Columbia was drilling Monte Oscuro 2, while Sociedad Nacional del Carare was drilling below 5222 feet at Monte Oscuro 1. The latter test has had considerable trouble with stuck drill pipe.

Crude oil exports from marine terminals of Andian and Gulf pipe lines were 1,492,518 and 419,163 barrels, respectively.

Canada

Government Interference With Oil Industry Condemned

Recommendation against further government interference with the Albertan oil industry was made last week by the McGillivray Royal Commission, which last week issued a 528-page report after lengthy hearings conducted spasmodically over the past two years. The commission held against control of the industry by any government agency, and against price-fixing of refined products by the provincial government.

The public, the commission said, is generally well protected by the play of contending interests in the oil industry. It found also that the industry has not been guilty of making undue profits, nor has it demanded exhorbitant prices for its products. It was suggested that the government should not enter into competition with its own people unless freedom of action on the part of private groups has led to definite harm to the public.

Premier William Aberhart, commenting on the findings of the commission, declared they would be valuable in future action taken by the provincial government, and indicated that further attempts are likely to be made by the government to lower prices of petroleum despite any recommendation of the commission.

He also indicated that the industry would be called upon to pay a larger amount than it now does toward the cost of the provincial government.

Realizing that the Albertan oil industry has reached the point where more technical men are needed, the government plans to add a chair of petroleum engineering at the University of Alberta with a department of esearch in petroleum, Aberhart said.

U. S. FIELD OPERATIONS

Illinois

Washington County Wildcat Swabs 214 Barrels in 11 Hours

Gulf Refining Company opened a new field in Washington County, 10 miles from production, with A. Buhl 1, CNW SE SW 23-1s-1w, a mile south of Irvington, which swabbed 214 barrels in 11 hours from Benoist sand at 1538 feet. Casing was cemented at 1522 feet.

The location is on a relatively small structure, as revealed by seismograph and magnotometer data, in which Shell Oil Company, Magnolia Petroleum Company, and Gulf Refining Company are the principal acreage holders.

There are two other fields in the county, the 115-well Cordes pool, 7 miles southwest of Nashville, and the 3-well DuBois pool, both productive in the Benoist.

Pure Oil Company appears to have a successful well at M. P. Redmon 1, E½ NW NW 17-5n-10e, a mile from Mattie Aldridge 1 with which the company recently opened a new field in Jasper County. Redmon 1 swabbed 100 barrels of oil in four hours from McClosky after drilling 4584 feet into Devonian lime, which carried only light oil stains.

In Hamilton County, near McLeansboro, Kingwood Oil Company was preparing to test prospective pool opener, F. M. Morris 1, SE NE 34-5s-6e, where casing was cemented to an undisclosed depth below 3000 feet. The site is 2½ miles northwest of Dale field, opened several months ago by the company. Meanwhile, the company was ready to start drilling another wildcat in the area, Warring 1, NE NW NE 14-6s-6e, 2½ miles northeast of the Dale field.

Another Kingwood Oil Company wildcat, Paul Martin 1, White County, NW NE 13-7s-8e, swabbed 12 barrels of oil and 8 barrels of water in 24 hours from Tar Springs at 2248 feet. Drilled through the Devonian to 5225 feet, the well has since tested the McClosky at 2972-2980 feet and in recent weeks has explored the shallower Tar Springs. A 60-quart shot damaged the pipe and a squeeze job was necessary.

Lancaster Extended

The Lancaster field of northern Wabash County was extended ¼-mile southeast with completion of Robley-Garner Putman 1, NE NE SW 3-1n-13w, which was estimated as a 1000-barrel well in the McClosky.

Preparations were underway to spud an important Perry County wildcat, G. H. Blankenship's Pinckneyville City Park 1, NE NE SE 13-5s-3w, on the Pinckneyville anticline which has received favorable consideration as a prospective oil area in state geological survey bulletins. Blankenship's location is a farmout of The Ohio Oil Company, and the test will be carried to the Devonian unless commercial pays are found at a lesser depth.

The week was marked by the climb of the Centralia field to the state's second ranking area in production, and the jump of the state's output to a new record over 500,000 barrels. The field, where large Devonian completions in recent weeks have rocketed production, was averaging 93,450 barrels daily to surpass the output of the Louden pool, 73,000 barrels. Louden, in Fayette County, had held the No. 2 position in Illinois for more than a year, surpassed only by the Lake Centralia-Salem field of Marion County, now averaging 241,000 barrels a day.

Largest Illinois' completion of the week was Shell Oil Company's E. C. Criley 12-C, E½ SE NE 35-2n-1w, Centralia field, which flowed 8112 barrels in 24 hours from Devonian at 2905 feet. Another of the larger completions in the pool was Adams Oil & Gas Company's Copple 15, CE½ SW SE 35-2n-1w, which flowed 6500 barrels in 24 hours from Devonian to make the biggest well the company has completed in Illinois. Company is the discoverer of the field.

A Bond County wildcat, Seaboard Oil Company's Tremblay 1, SE 22-5n-3w, has been abandoned at 2372 feet, after topping a dry Devonian at 2245.

Pure Oil Company plugged Burton 1, an attempted extension to the Cisne field of Wayne County, E½ SE NW 3-1s-7e, which found only saltwater in both McClosky and Aux Vases. The St. Genevieve was topped at 3129 feet, and total depth was 3212 feet.

Roger C. Young's Whittington 1, Jefferson County wildcat, SE SE SW 30-4s-3e, was drilling at 3252 feet, believed near the top of the Salem lime. Two non-commercial shows have been cored, one in the Paint Creek and the other in the McClosky.

A south Richland County wildcat, Cary Robinson et al's C. H. Jenner 1, NE NE SE 26-2n-10e, was abandoned at 3326 feet through the McClosky in which a stain was found at 3266-3268 feet. Also dry in the McClosky was a wildcat 3½ miles south of Jenner 1, Steve Ford et al's E. C. Marshall 1, SW NE NE 2-1n-10e, Edwards County, which probably will be abandoned at about 3300 feet.

Indiana

Griffin Area Wildcat Rated at 50 Barrels

Company officials rate the Superior Oil Company's Mumford Land Company 3, Posey County wildcat northeast of Griffin, SE NE NE 32-3s-13w, a 50-barrel well in the Cypress sand at 2442-52 feet. The test, about 1½ miles of production on the same lease, was drilled through a dry McClosky to 2898 feet, and plugged back.

In Newton County, about 50 miles southeast of Chicago, W. J. Vaughn & R. H. Smith's Yocah 1, SW SE SE 33-32n-8w was testing a show of oil in Trenton with some free oil in the hole.

Abandoned was a wildcat McClosky test in the old Pennsylvanian sand producing West Princeton field, east Gibson County, Major Oil Company of Indiana's Knight 1, NE SW SW 2-2s-11w. With surface elevation of 457 feet, the test topped Menard at 1445 feet, Waltersburg at 1525 feet, Glen Dean at 1668 feet, Hardinsburg at 1742 feet, had Cypress at 1895-1904 feet, which showed for a small, non-commercial well, Bethel at 2056 feet, St. Genevieve at 2126 feet, and McClosky at 2176 feet showed sulphur water.

Also abandoned was a Gibson County wildcat, W. C. McBride's William Blair 1, SE SE NW 13-2s-12w, Montgomery township, which was carried to 2526 feet in the St. Louis.

In the closely-watched area north of Caborn, southwest Robinson Township, near where Gulf Refining Company was completing a Pennsylvanian sand well, the same company is drilling at about 1700 feet for a McClosky test in the H. G. Dickhaut 1, SW NW SW 5-6s-12w.

An oil well in the Rockport field, Spencer County, offset somewhat a recent wave of dry holes. Damron Brothers' F. Boyd 1, SE SE 30-7s-6w, was rated a 30-barrel well in the Palestine sand at 949 feet.

Abandoned was a wildcat south and west of oil production in the Rockport field, C. G. Williams and O. O. Borden's Elvis Walker 1, NE NW NW 6-8s-6w, at 920 feet.

Kentucky

Daviess County Wildcat May Make Well in Tar Springs

Andrew Tell's E. F. Lebold 3, 2 miles northwest of Glenville, Daviess County, initialed 198 barrels in 24 hours from Jett sand at 1270-86 feet to make one of the best producers in West Kentucky in several weeks.

Abandoned in the Glenville pool, Daviess County, was Cameron & Hupp's Aiken 3, 1½ miles southwest of Handyville. Casing collapsed and the hole was junked at 1299 feet.

A mile northeast of Whitesville, Daviess County, White & Vickers' Holbrook 1, was abandoned in Jett sand at 602 feet.

Two miles northeast of Maceo, Daviess County, Hart & Hart's Nance 2 was being completed for a small Tar Springs producer at 893 feet. The test is about 10 miles southwest of nearest commercial production.

Oklahoma

Prue Sand Provides Gas Discovery in Lincoln County

A vigorous wildcatting campaign brought Lincoln County another Prue-sand discovery. Anderson-Prichard Oil Corporation et al's Smith 1, SE SW NE 18-15n-5e, 2½ miles south of the Kendrick pool, squibbed pay at 3508-35 feet with 155 quarts. Gas gauged between 8,000,000 and 10,000,000 cubic feet. Hole was carried to 4530 feet in watery Wilcox sand and immediately plugged back to 3538 feet. Big Chief Drilling Company were operating tools. Mayes Oil Corporation and O'Connor Drilling Company staked Sowards 1, SWc 15-15n-6e, between Stroud and Kendrick pools, Lincoln County, on 900-acre block. Fields & Nagle's Alspaugh 1, SW SE NE 35-15n-6e, 3 miles south, shot Prue sand at 3034-74 feet with 12 quarts without results. Sand was topped at 3068 feet, and test is now shut down for orders at 3150 feet.

Kendrick pool is now defined to both north and south. Summit Drilling Company's Cleer B-1, SW NE SW 6-15n-5e, a north offset to the discovery, was abandoned in dry Prue sand at 3561-3668 feet. Greggs 1, located ⅝-mile to the south, was a failure the previous week.

An Oswego lime pool was showing in Osage County at E. O. Platter's Osage 1, SEc NE 29-22n-9e, 2½ miles south of East Hominy pool, which pumped and flowed 35 barrels of oil in 24 hours while testing. Lime was topped at 3095 feet, Prue sand at 3300 feet, and a show of oil was picked up at 3470 feet in pink limestone. Bartlesville sand was logged at 3490 feet, Mississippi lime at 3835 feet and operators were fishing for cones at 3796 feet.

Two miles west of Keokuk pool, Seminole County, F. B. Murta et al's Harber 1, C W½ NE SE 4-10n-6e cored dry Hunton lime at 4259-69½ feet and was abandoned.

Dill pool was extended north as John Droppleman et al's Dill 1, SEc 34-12n-8e, a north offset to the Gahagen producer, flowed 150 barrels the first and 180 barrels the second hour to promise the largest well in the field. Cromwell sand was logged at 3542-72 feet. Operators staked location for Hensley 1, NW NE NE 3-11n-8e, Seminole edge of the pool.

West Arno Tests Dry

West Arno pool, Creek County, may be defined by two dry holes. Bryan Petroleum Company's Ah-Sey 2, NWc NE 34-14n-7e, topped Prue sand at 2580 feet and drilled to 2945 feet without a show. Wilcox Oil & Gas Company suspended drilling at 2595 feet at Ah-Sey 1, SE SW SE 27-14n-7e, with only a small show of oil in the base of Prue sand at 2575-85 feet. Sunray Oil Company's Evans 1, NW NE NE 34-14n-7e, was good for 20 barrels of oil daily and 3,000,000 cubic feet of gas in sand at 2608-85 feet. It has been deepened to test the Wilcox sand. The discovery well, Bryan Petroleum Company's Ah-Sey 1, NE NW NE 34-14n-7e, was averaging 65 barrels of 41-gravity oil daily through tubing.

Eason Oil Company et al's Wells 1, NE NW NE 15-16n-2w, near Guthrie, Logan County, topped Oswego lime at 5122 feet and was rotating below 5775 feet.

Wildcat Starts

J. B. Russell and Fred Shields started work on Laughlin 1, SWc SE 35-16n-5e, north of Kendrick pool, Lincoln County. Contract is 3500 feet or Prue sand test. Supporting this wildcat test are Sinclair Prairie Oil Company, Magnolia Petroleum Company and Sun Oil Company. Location is on an 800-acre block.

E. H. Langston and D. M. Crowe staked Fiegenbaum 1, NE NW SW 29-28-2e, on a 4640-acre block, for an Arbuckle-lime test. A dry hole was drilled to 3967 feet in NEc SE 28-28-2e. Eason Oil Company completed cellar and pits at Murphy 1, SEc SW 20-19n-2e, west of Stillwater, Payne County. Haynes Drilling Company were rigging up tools at McKennan 1, CE½ SE NW 25-12n-8e, east of Boley, Okfuskee County.

Champlin Refining Company's Kunkel 1, CE½ SE NW 23-23n-6w, 4 miles northeast of Enid, Garfield County, showed salt water in second Wilcox sand at 6938 feet. A slight show of oil and gas was picked up in a core at 6177-88 feet in Mississippi lime, topped at 6070 feet.

Johnson & Kemnitz Drilling Company et al's Neff-Godfrey 1, SW SE NE 14-6s-6e, 3½ miles southwest of Cumberland pool in Marshall County, was shut down for orders in dry Arbuckle lime at 5747-5890 feet.

Edwin Bristow et al's Damron 1-A, SE NW SW 25-2s-6w, east of Woolsey pool, Stephens County, recovered salt water after acidizing formation at 1514-45 feet with 2000 gallons.

In Kiowa County, C. H. Marshall's Pattchin 1, NE NW NW 28-7n-18w, showed 100 feet of mud on a 30-minute drill-stem test at 1895 feet. Hole is bottomed at 2165 feet.

Perkins pool, Lincoln County, has been defined to the north. Malernee Oil Company's Cash 1, SW NE NW 24-17n-2e, was checking 45 feet lower on the structure than the discovery well, but was drilling below 4700 feet. West ½-mile of the discovery, Mid-Continent Petroleum Corporation's Kint 1, NE NW SE 23-17n-2e, topped Hunton lime at 4522 feet and drilled two feet of saturation. A producer is indicated, as it checked only 4 feet structurally below the Teter well.

Loual Drilling Company et al's Jackson 1, C SW NE 24-9n-9e, Hughes County, spudded in for a Cromwell sand test. Gas production was obtained at Morgan-Gulf Production et al's Diamond 1, C E½ NW SE 33-9n-9e, which gauged 4,000,000 cubic feet daily through tubing. Pay is Cromwell sand at 3326-50 feet.

North of West Francis pool, Pontotoc County, Kerlyn Oil Company's Chism 1, NW SE SE 24-5n-6e, showed 7,000,000 cubic feet of gas on a 23-minute drill-stem test at 1930-75 feet in sand. No oil or water was reported. 5½-inch casing was cemented at 1950 feet, and standard tools were rigged up to drill plugs. L. P. Sandback et al's Statler 1, NEc 26-5n-6e, on the west edge of West Francis pool, gauged 6250 cubic feet of gas and 1 barrel of oil per hour. Pay horizon is Gilcrease sand at 1860-1903 feet.

St. Louis pool, Pottawatomie County, may be extended northeast at Thompson Brothers' Truesdale 1, SEc NW 31-8n-5e, which had a show of free oil at 4354 feet in the base of the first Wilcox sand. Seven-inch casing was set at 4346 feet. Operators were deepening for the second sand, and should it prove unproductive, they will test the first Wilcox, dolomite and upper horizons. Hunton lime was topped at 4121 feet for a show of oil and dolomite, topped at 4275 feet, had a core at 4128-32 feet with 1½ feet of lime. Staining and good odor also showed in a core at 4281-94 feet.

Kansas

Good Well Provides Slight Extension to Bornholdt

Sunray Oil Company extended production in the Bornholdt pool, McPherson and Rice counties, one location west at Lindquist 3, CE½ NE NW 29-20-5w, establishing a drawdown potential of 66,358 barrels daily on a 3-hour test. Production actually averaged 160 barrels per hour, and the well was assigned a state potential of 3000 barrels, the maximum allowed. Pay is Mississippi Chat at 3375-84 feet. Eight new tests were staked.

Bay Petroleum Company et al's Coons 1, CW½ SW SW 13-19-1w, 3 miles east of Ritz-Canton pool and the same distance north of the Bitikofer pool, McPherson County, topped Mississippi lime at 2906 feet and drilled to 2936 feet. From this horizon it showed 2,500,000 cubic feet of gas with a spray of oil. As operators deepened to 2939 feet, water ruined the show. Rotary tools were being reinstalled to deepen to the Viola before further testing. Aladdin Petroleum Company located Young 1, CSL SE SW 36-19-1w, a north offset to the Bitikofer discovery.

H. H. Royer et al's Kroch 1, NEc NW 28-18-4e, 8 miles south of Lost Springs pool, Marion County, and north of the Propp gas pool, filled 300 feet with oil and 1800 feet with water from 2510 feet in Mississippi lime, topped at 2431 feet. Free oil showed at 2452 feet, and 6-inch casing was set at 2430 feet. Operators will try for a shut-off.

Second offset to the Rahn pool, Cowley County, was abandoned. Jock Garden et al's Waldschmidt 1, SEc NE 13-24-5e, was a failure at 2982 feet in Mississippi lime, missing the Bartlesville pay horizon. Barwick & Sheridan et al's Warren 1, CW½ NW NW 18-35-6e, 9 miles south of this pool and 7 miles west of Falls City pool, Cowley County, was abandoned at 3211 feet. Kansas City lime was topped at 2675

feet, and Mississippi logged at 3198 feet.

Foster, Reeves et al's Howard 2-A, CE½ SW SW 8-34-4e, north of Arkansas City, was dry in Arbuckle lime at 3842-72 feet and was abandoned. In the Stalnaker sand at 2115-18 feet, it showed 1,200,000 cubic feet of gas. A log disclosed Neva at 569 feet, Topeka at 1430 feet, Lansing 2091 feet, Layton 2590 feet, Fort Scott 2963-3080 feet, and Mississippi lime at 3329 feet.

Stanolind Oil & Gas Company's Hefferman 1, CNL NW NE 4-15-13w, between Hall and Coralena pools, Russell County, was abandoned at 3232 feet in Arbuckle lime, topped at 3180 feet. Central Petroleum Company et al defined the southwest trend of the Burnett pool at Marshall 1, NWc 24-11-18w, which was abandoned at 3648 feet, getting only a small show of oil.

Magnolia Petroleum Company abandoned their wildcat venture 6 miles south of the Pawnee Rock pool. Smith 1, CEL NE NE 12-21-16w, was dry in Arbuckle lime at 3785 feet.

Finston et al's Siemsen 1, CW½ NW SE 3-17-10w, filled with water from Arbuckle lime at 3790 feet. This wildcat is south of production in the Stoltenberg pool and Ehler pool, Ellsworth County.

Prusa Pool Extended

Stanolind Oil & Gas Company's Esfeld 1, CSL SE NE 28-16-11w, was completed for a potential of 565 barrels daily to extend Prusa pool, Barton County, ¼ mile southwest. Cliff Pugh took a farmout from The Texas Company and made location in CEL NE NE 1-17-12w, southwest of Hitchman. Herndon Drilling Company has the contract.

In the Udall area, Cowley County, Sage, Murfin and Markey were rigging up at Carlson 1, CWL SW SW 2-30-3e. Trees Oil Company has a rig at Orr 1, NW NE NW 17-30-4e, west of Rock pool. E. B. Shawver et al's Widener 1-B, CS½ SE NW 11-30-4e, bailed 1½ barrels of oil per hour from Arbuckle lime at 3226-30 feet. Water showed at 3245 feet. This wildcat is northeast of Rock pool, Cowley County.

Duwe, Farris and Royer located Hutchins 1, CW½ SW SE 20-21-8w, southwest of Wherry pool, Rice County.

H. L. Berkey staked Reif 1, CN½ NE NW 1-17-12w, south of Krier pool, Barton County. Thrumon, Hill et al set surface pipe at Miller 1, CE½ SE NE 21-19-14w, south of Heizer pool. Pope and Klink spudded and shut down at Campbell 1, CN½ NW SE 11-19-15w, northeast of Kruckenburg pool, Barton County.

Henderson Oil Company spudded Schneider 1, SW SE SW 9-23-11e, a semi-wildcat in the Severy pool of Greenwood County. In the same area, Reed et al staked Dove 3, NE 17-28-11e.

Forest City Basin

Falls City Pool Has 500-Barrel Well

A 500-barrel well in the Falls City pool, Richardson County, Nebraska, highlighted basin activity. Harry Harper's Seibbernsen 1, SE NE NW 20-1n-16e, southeast of Boice and Bucholz wells, averaged 32 barrels an hour, including oil load, through tubing. Hunton lime was topped at 2214 feet and hole bottomed at 2236 feet in the pay, which was stage-treated initially with 900 gallons of acid, and immediately re-acidized with 3000 gallons. Gravity is approximately 30 degrees. Considerably greater volume of gas accompanied this flow than at the two previous wells. A 120-barrel oil load was recovered in 3½ hours.

Ten miles west of the Falls City pool, Uhri Oil Corporation reported saturation in the Hunton lime at Ogle 1-A, NW SE SE 9-1n-14e, topped at 2255 feet. Operators were coring in the pay.

Indian Territory Illuminating Oil Company made its initial location in the basin play at Schaible-Kuttler 1, C NE SW 29-3n-16e, 2½ miles southeast of Shubert and 11 miles north of the Falls City pool, Richardson County. Seismograph and core drill tools were utilized in surveying their 8000-acre block. Contract was awarded Ferndale Drilling Company, Odessa, Texas, for a rotary test to the Arbuckle lime.

Pawnee Royalty Company's Bucholz 1, C NW SW 17-1n-16e, completed 27 producing days of the 60 required to collect the state bonus of $15,000 for the first commercial well in Nebraska. Daily production is averaging 200 barrels.

Pawnee Royalty Company's Boice 1, CSL N½ NE NE 18-1n-16e, Falls City discovery, drilled cement plug to 2286 feet in Hunton lime from where the hole filled 1400 feet with oil. In 24 hours, the well swabbed and bailed 150 barrels of oil and 450 barrels of water.

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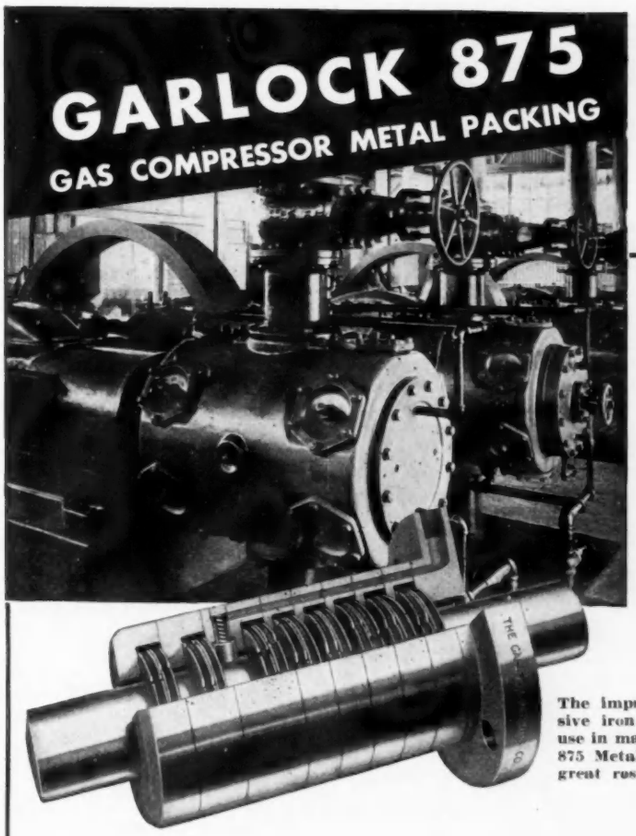

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North Texas

Clay and Montague County Wildcats Nearing Objectives

Half a dozen wildcats in Clay and Montague counties that are seeking deep production, particularly from the conglomerate member of the Bend series, were nearing decisive levels late last week. These tests are situated within and adjacent to areas that were given aggressive lease plays early last spring, and their outcome will have direct bearing on future development plans of other participants.

In eastern Clay County, E. C. Norwood and King Oil Company's Hapgood 1, SWc Block 61, Marion County School Lands, passed up nominal oil saturation in lower Strawn at 5012-30 feet, and was drilling shale at 5250 feet. John Farrell et al's Malone 1, 5½ miles west by north, was drilling shale at 5705 feet. Wirt Franklin and W. B. Omohundro's Staggs 1, 6 miles north of Henrietta, is credited with logging small oil stain in conglomerate at 6063-6065 feet, and was drilling lime at 6155 feet. L. T. Burns et al's Watson 1, wildcat near south line of county, was temporarily abandoned at 5207 feet after welding cap on surface pipe. It is on a small tract within a large lease block held by Gulf Oil Corporation, and no information has been released on the geological markers.

Sinclair Prairie Oil Company's Milam 1, western Montague County wildcat and probable 3½-mile northeast extension to the Ringgold pool, boosted its chances of making an oil well in logging oil stain and saturation in broken conglomerate in deepening from 5683 to 5707 feet. Initial try for production made after perforating 7-inch casing, cemented at 5683 feet, with 45 shots at 5660-76 feet, yielded 34 barrels of oil on 13-hour swabbing test, and the next day it swabbed 15 barrels of oil. Top of Bend is placed at 5590 feet, or 11 feet higher than Omohundro et al's Ringgold discovery. Fain-McGaha Oil Corporation's Spring 1, northwest offset to the latter producer, indicated a natural oil flow would follow removal of the remaining drilling fluid from the 5½-inch pipe at 5662 feet. About 7½ feet of conglomerate pay was cored between 5668-90 feet followed by dry shale and sandy-lime to 5702 feet. Top of Bend was called at 5630 feet by electric log, and at 5651 feet on another call. Gulf Oil Corporation's Worsham Estate 1, southwest location, was drilling at 2410 feet. Harvey Drilling Company and Sinclair Prairie Oil Company's Threadgill 1, 3½ miles west by north of Stoneburg, entered the Bend conglomerate at 6106 feet, carrying oil odor and stain to 6113 feet, where drill-stem test proved dry. It was drilling shale at 6230 feet.

Nocona Test Plugs Back

Having failed to develop production from the Simpson and Ellenburger, logged at 5178 feet and 5406 feet, respectively, Sinclair Prairie Oil Company's Benton 1, ¾ mile east of Nocona townsite, cemented back to 5135 feet. An attempt will be made to produce from conglomerate saturation at 5127 feet in Bend, topped at 5056 feet, being 114 feet higher on this marker than the company's nearby Ordovician failure on the Whaley tract. Fourth deep failure for the Nocona triple-pay area was recorded by Stanolind Oil & Gas Company's Kate Davis 3, northwest edge location, which quit at 5858 feet in Ellenburger, topped at 5352 feet. Thinning of the Bend pay, encountered at 5205 feet, and absence of porosity accounted for the failure rather than structural position, as it is only one foot lower than the company's deep discovery, situated 882 feet southeast.

Amerada Petroleum Corporation's Goodpasture 1, northwestern Wilbarger County wildcat, was drilling hard lime at 6427 feet after passing up oil production in the Canyon, Strawn and Ellenburger zones. Production test in dolomite saturation at 6309-30 feet in Ellenburger, topped at 6288 feet, with hole bottomed at 6333 feet, yielded 15 barrels of 41½-gravity oil hourly. This 21-foot section of Ellenburger pay gives the district a new production depth record. Sulphur water was indicated in cuttings at 6353 feet, thereby lessening chances of picking of a sand zone in the Ellenburger, although the hole is being carried deeper for this reason and for geological information. String of 5½-inch pipe, is cemented at 6306 feet. Amerada Petroleum Corporation holds lease on 5000 acres in the area, including west and south offsets, while Humble Oil & Refining Company is due to start a southwest offset shortly on a 320-acre lease.

Pipe line proration in the Consolidated, Hull-Silk and K-M-A deep areas was terminated June 19 when Sinclair Prairie Oil Marketing Company, largest crude buyer in North Texas, resumed taking the full allowable quota. The company curtailed its runs to 75 percent on April 1, but has continued to absorb new well completions. It is reported that the company will endeavor to make up back allowable to June 1.

Continental Oil Company et al's O. O. Ross 1, third test for the Jolly deep pool, western Clay County, was awaiting acid treatment and production test after logging saturated lime at 5384-5437 feet, followed by shale to 5440 feet in Bend, topped at 5382 feet. Bass & Dillard and Superior Oil Company of California have an interest in the unitized block.

Sinclair Prairie Oil Company's McGeorge 13, southeast edge test for the Walnut Bend field, Cooke County, flowed 653 barrels potential from the lower Strawn at 4936-62 feet. It is a west offset to a pumper recently recorded by Sun Oil Company's Snuggs 4.

West Texas

Pumping Well Provides Year's Fourth Strike in Crockett

Fourth oil strike for Crockett County this year became assured last mid-week when Moore Exploration Company's Hoover 1, C NE SW GC&SF Section 16, Block 1, indicated a commercial pumper after 360-quart nitro shot in broken lime at 2012-2150 feet. Swabbing test made upon removal of shot cavings to 50 feet off bottom averaged 5 barrels of oil hourly, and the well filled 800 feet with oil in 7 hours. Top of Permian lime was called at 1910 feet, with an elevation of 2445 feet. Hoover 1 is 4 miles northwest of pumping production from the same horizon on the Hoover ranch, and is 5⅜ miles northeast of a recent discovery by the above concern.

Soma Oil & Gas Syndicate's Noelke 1, original completion for the Soma shallow pool, western Crockett County, gauged 200 barrels of 32-gravity oil in 3½ hours when opened June 13 after being shutin 34 days because of excessive gas yield. The gas volume was rated at 47,600,000 feet daily on the late test. Production is from Yates sand at 1075 feet. An east offset flowed 72 barrels natural through tubing early in June from Yates at 1064-1100 feet. M. & M. Drilling Company's Bouscaren 1, a mile north of the Soma discovery, missed the Yates pay, and suspended operations to clear titles after landing casing near the 1500-foot level.

Removal of cavings from Helmerich & Payne and Atlantic Refining Company's University 1, prospective small oil producer for southern Andrews County, has delayed a production test. Broken saturation at 4350-4475 feet was shot with 500 quarts of nitro. Three acid treatments at 4260-4425 feet indicated a pumper. Atlantic Refining Company's University 1-2, north offset, was drilling at 4210 feet, having logged top of Yates at 2760 feet, or 548 feet above sea level. Its University 1-23, 2 miles south, reported first Yates at 2770 feet, and was drilling at 3730 feet. Production is required at both by July 8 to forestall lease expirations.

Magnolia Petroleum Company's Mallet 1, ½-mile northeast extension for the Duggan field, Cochran County, flowed 305 barrels of oil in 12 hours while cleaning hole of drilling fluid. Broken oil saturation in lime at 4996-5038 feet was treated with 11,500 gallons of acid in 3 stages. This well is 3½ miles west by north of nearest production in the Slaughter field, Hockley County, and is relatively higher on structure. The Texas Company's Mallett 1-F, semi-wildcat south of the trend between the two areas, was drilling at 4880 feet, with an elevation of 3627 feet. Whittington Bros. et al's Alewine 1, NWc Labor 12, League 41, Maverick County School Lands, is a new project for the north end of the Slaughter field. Gulf Oil Corporation's Mallett 3, offset to the most southerly producer, cemented 5½-inch pipe on bottom at 4800 feet.

Plymouth Oil Company's Brownfield 1, eastern Yoakum County wildcat and 4 miles east by south of Waples-Platter one-well pool, was drilling at 3460 feet. Top of anhydrite was called at 2530 feet, first Yates sand at 3310 feet with an elevation of 3501 feet. It is 56 and 36 feet lower, respectively, on the two markers than the nearest producer, confirming geophysical information on the area. The well is on acreage farmed out by Amerada Petroleum Corporation from a 2900-acre block pur-

chased last March with a drilling obligation. Hemphill et al made an unsuccessful attempt to finance a drilling obligation in 1936 on the same site with a 16-section block, but the Wasson-Bennett field boasted only one well then and it was not considered attractive production.

Gulf Oil Corporation's University 2-N, SE NW SE Section 9, Block 35, in southeast portion of the Jordan field, Ector County, gauged 1933 barrels of 34.6-gravity oil natural on 6-hour proration test to earn a potential of 7732 barrels with gas-oil ratio of 466 feet per barrel. Production is from porous lime at 3545-68 feet, followed by hard lime to 3575 feet. Gulf Oil Corporation's Waddell 31, semi-wildcat between the Gulf-Waddell and Dune fields, encountered main body of sulphur water in drilling to 4053 feet, and has plugged back to 3400 feet to try and make a producer from oil saturation at 3312-28 feet. First water was logged at 3554-64 feet with an elevation of 2708 feet.

Development of oil production along the 4-mile interval that separates the Halley pool, Winkler County, and the Gulf-O'Brien field is virtually assured. Gulf Oil Corporation's O'Brien 136, SE SE SW Section 11, Block F, 1⅜ miles south of Skelly Oil Company's Halley pool discovery, tested 15 barrels oil daily from saturation at 2774-84 feet. Small increase in oil yield was gained from sand at 2801-05 feet, and at 2837 feet it was drilling hard lime. The company controls all the nearby acreage, but royalty under the 22,400-acre O'Brien lease is scattered among numerous companies and individuals.

Plymouth Oil Company's Levy 1, projected Ordovician test for northwestern Pecos County, logged sulphur water in porous lime at 4088-4102 feet, and was drilling at 4225 feet in lime and chert. This wildcat is on the east rim of the Delaware basin, and the final log will be an important source of geological information. Gulf Oil Corporation's Wristen 5, deep test for the Shipley pool, Ward County, was drilling dry lime at 7930 feet in the upper section of the Ordovician. Saturation, carrying gas, found in the Holt, or Clear Fork member of the lower middle Permian is the only encouragement for production logged below the regular Ward County zones.

New Mexico

Two Lea County Pools Receive Outpost Starts

Outpost tests for the Arrowhead and Rhodes pools are included in seven new operations assigned Lea County the past week. Gulf Oil Corporation's State-Mark 1, C NW NE 3-22s-36e, is seeking a mile east extension to the former area. Involving acreage that has heretofore been classed as a dry gas belt.

Anderson-Prichard Oil Corporation's Morris 1, NEC SW 27-26s-37e, is seeking a southwest extension for the Rhodes pool, being several locations from the largest oil well in the area that was completed last February by The Texas Company. This pool has not been fully exploited for oil, although it is the second oldest in the county, having been discovered in 1927.

Continental Oil Company et al's Vaughn 1-B-12, C SE NE 12-24s-36e, offsetting oil production in the Toby pool, succeeded in mudding off an estimated flow of 50,000,000 cubic feet of dry gas from lime at 2853-2905 feet. It will continue to the oil zone near the 3500-foot level.

Possible revival of development in the North-Lynch pool was eliminated through failure of The Texas Company's Elliott 1, C SE SW 11-20s-34e, which encountered first water at 3767 feet and quit at 3861 feet. The original Lynch pool to the south had an exceptionally high average crude yield per acre, although the flowing life was short.

East Texas

Chapel Hill Outpost Dry in Second Glen Rose; Deepening

South outpost for the Chapel Hill deep pool, Smith County, failed to yield oil or gas from the second Glen Rose, and has resumed operations to explore the Pettit and Travis Peak zones. Checking low on structure, Sun Oil Company's Sanders 1, ¾ mile south of gas-distillate production, showed 160 feet of salty mud and water when formation tester was used at 7429-55

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feet. Massive anhydrite was logged at 7102-7335 feet with an elevation of 460 feet. The company's Everhart 1, on the north portion of the long structure, was making a production test through casing at 8300 feet of the Travis Peak at 8365-8411 feet. If this zone fails to produce, hole will be plugged back to perforate opposite oil and gas show passed up in Pettit at 8252-72 feet.

Production from the Lower Trinity is to be sought by J. S. Harrold et al's M. J. Armstrong 1, NWc of a 73½-acre tract, M. del Carmel Survey, 3 miles southeast of Henderson, Rusk County. Rig was moved in last week for a 7500-foot test. Location is a mile south of Nivla Oil Corporation et al's E. B. Alford 1, abandoned in Lower Glen Rose at 6802 feet in August, 1937. Harrold et al recently made an unsuccessful attempt to deepen the test, having obtained financial support from companies holding leases in the area.

Limestone County has a new Woodbine oil producing area through workover operations on Zephyr Oil Company's Peeples 3, 1½ miles southwest of Tehuacana and on a secondary fault plane to the Mexia displacement. Originally listed as a failure last February at 2868 feet, the well was plugged back early this month and pumped 74 barrels fluid, 10 percent oil, on proration gauge from thin sand section, topped at 2645 feet with an elevation of 510 feet. It offsets 2 failures drilled last year by the Tyler concern.

S. J. Taylor and F. K. Lytle's Reid 1, projected Trinity test for northwest edge of the Mexia field, was drilling at 4200 feet, having passed up the Woodbine series without a test.

Southwest Texas

Strikes Open Two Submerged Areas on Lower Gulf Coast

Submerged lease exploration on the South Texas Gulf Coast is in line for further expansion as two more reserves are being opened to production. They will bring the number of fields productive in the bays of this area to six. Humble Oil & Refining Company has been directly responsible for one-half of these, while Skelly Oil Company, Pure Oil Company et al, and Sinclair Prairie Oil & Gas Company each have opened the way to the other submerged pools.

After drilling to 9428 feet, Skelly Oil Company plugged back Texas 1, at the extreme south end of Kleberg County, to complete in a Frio sand at 7455-63 feet. Casing was perforated at 7450-60 feet with 8 shots, and on a 6-hour drill-stem test using 1800-foot water cushion, the well flowed at the rate of 5 barrels of fluid per hour, 85 percent 41.9-gravity clean oil and 15 percent brackish water. The flow was through ¼-inch chokes, top and bottom, pressures building up to 1300 pounds working and 2000 pounds when closed in. Casing was again perforated at 7456½-59 and 7460-62½ feet for a squeeze job under pressure in an effort to cut off water intrusion. Preparations were being made for reperforating.

The wildcat, in Tract 385, Laguna de los Olmos, is only a few feet north of the Kenedy County line. Practically the entire Kenedy County area is under lease to Humble Oil & Refining Company, which previously explored the area with deep core holes. It is 2 miles southwest of Superior Oil Company's deep test, which ran much lower structurally, indicating a high relief-type structure.

In a campaign to protect expiring leases on submerged tracts in Nueces Bay, Nueces County, Humble Oil & Refining Company was completing the first of several wildcats. Texas 1, 2½ miles south of East White Point field and 2 miles west of Corpus Christi, Survey 723, found a shaley sand and shale at 3976-79 feet and solid gas sand at 3979-4022 feet. Salt-water sand was found at 4147-96 feet, more sands being below to near 5200 feet, bottom of hole, but they carried water. Pipe was landed at 4100 feet and completion was being effected through perforations in the 4000-foot gas sand.

Wade City Extension Indicated

An extension of nearly 1½ miles to the southwest is apparent in the Wade City area, Jim Wells County. Hewit & Dougherty's O. B. Carver 1, SE Block 9, GCF&TL Subdivision, cored McNeill sand with a good oil show at 4904-11 feet, and is bottomed at 4916 feet in shale. Several tests were at-

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tempted, but each failed. The well was awaiting orders, but may set casing for a completion attempt.

H. H. Howell et al's San Antonio Joint Stock Land Bank 1, Section 9, 5 miles south of Bentonville and in Jim Wells County, proved a failure after perforations netted only salt water. Bottom was at 6546 feet.

W. C. McBride's Emil Schroede 1, northwest offset to Howell's north outpost producer to the Orange Grove field, also Jim Wells County, cut a fault and ran 130 feet low on the main sand, found at 5221-35 feet. The lower portion showed water, and hole was awaiting orders around 5500 feet, its contract level.

Discovery of crude production on the east flank of the Stratton field, Nueces County, foreshadows a new type of development for this area. The pool had been producing only distillate, and two recycling plants are in operation. Southern Minerals Corporation completed Bertram 1, Section 203, on a 1669-acre community lease, as an oil well from one of the area's main distillate sands at 6380-6403 feet. The well had been drilled to 6578 feet, casing landed on bottom and perforated at 6390-98 feet with 20 shots. It flowed 4 barrels of 42-gravity pipe-line oil per hour through 9/64-inch choke under 900 pounds tubing and 1250 pounds casing pressures. Flowing under a gas/oil ratio allowed by the Texas Railroad Commission, the company will not be required to construct a recycling plant to handle the gas. This may mean a closer spacing of offsets and an enlivened program along the flanks of the Stratton structure.

Republic Natural Gas Company was continuing to test its new sand discovery in the East White Point field, San Patricio County. The company's Rachal 38, on the western side of production, was flowing gas, distillate and wash water through ⅛-inch choke under 825 pounds tubing and 1750 pounds casing pressures. It previously had shown water with some oil through perforations at 6275-80 feet. Both are new sands for the field.

Norsworthy Production Company was preparing to test through perforations in the Greta sand at 4427-33 feet in Laura Fagan 1, 1½ miles northwest of the Fagan field. The test had been drilled to 6523 feet, but plugged back finding salt water on its first test through perforations at 5655-58½ feet.

After production dropped to about 35 barrels per day from sand at 5275-5285 feet, Colton & Colton deepened Etta Terrell 1, discovery of the Terrell Vicksburg sand field in southwestern Victoria County. The test encountered more sand at 5287½-5300 feet, and went into another zone at 5476-81 feet. Hole was carried to 5600 feet and casing set for completion. The lower sand, which is being tested, corresponds to a zone encountered at about the same level in The Texas Company et al's Warden 1, 2 miles to the east, drilled several years ago.

Pettus Supplies Gas Field

A gas field in the Pettus formation is apparent in Duval County, 3 miles southwest of the Muralla field. Frank Fronhoefer's V. Carillo 1, Cantu Survey 310, cored a broken sand section at 4629-56 feet, upper part carrying gas and the lower an odor of oil. Another sand was logged at 4669-74 feet. On a drill-stem test at 4622-40 feet, the well developed 400 pounds pressure and recovered a small amount of gas and oil-cut mud in 10 minutes. A test at 4640-56 feet recovered salt water, and another test at 4669-74 feet recovered a small amount of oily mud.

Filing of a potential test by Sun Oil Company on W. G. Lehr 1, SE Section 513, has definitely established the North Rincon prospect of Starr County as a producing area. The well, between the Rincon and Sun pools, was drilled to 5542 feet in the Vicksburg, and after a series of tests, was completed through 50 perforations at 4127-4137 feet. It pumped 23.55 barrels of 44.6-gravity clean crude per day, the gas/oil ratio being 1171 to 1. Production is from the Frio.

Lolita Strike

The Lolita sector of Jackson County received another strike as A. E. Masterson and R. B. Swiger's Robertson 1, SE Section 22, cleaned into pits making 8 to 9 barrels of 25.5-gravity crude and some wash water per hour. Flow was through 3/16-inch choke, pressures holding at 475 pounds on tubing and 750 pounds on casing. It was not fully completed. The wildcat was drilled on a farmout from Sun Oil Company, with acreage contributions from Gulfboard Oil Corporation and acreage purchases by Magnolia Petroleum Company which already had protection in the area. Present owners of the well completed the deal, but turned it to Heep Oil Corporation, Corpus Christi, which completed a contract to 7506 feet. The test was abandoned by this operator and the original developer of the project negotiated for the test.

Casing was landed at 6600 feet and a test made through perforations at 5662-66 feet. This developed salt water. The plug was drilled out for a test nearly 1000 feet deeper. Perforations were made at 6521-24 feet, the result being oil and salt water. These holes were squeezed and new ones made at 6514-18 feet where the production is being obtained. The discovery is five miles northwest of the Lolita field, and 2 miles northeast of the Texana area.

New Wilcox Test

The Wilcox trend added another deep operation which will test favorable prospect. Continental Oil Company, as a result of a deal with the Houston Oil Company of Texas, will drill a 10,000-foot test on the Mount Lucas gas structure in Live Oak County. The structure, which is a completely closed, high relief proposition, is one of the largest gas reserves in South Texas and is controlled almost entirely by Houston Oil Company.

Wilcox Oil & Gas Company suffered another failure in its exploratory program in northeastern Zavala County where Edwards lime showings have been found in several tests. Voigt 1, Crabtree Survey 30, 5½ miles southwest of the original Batesville crevice area, topped Edwards lime at 4112 feet, drilled to 4198 feet and was declared a failure. This operator was still working on Gilliam 6, just west of the Batesville field, attempting to overcome water intrusion in the limestone at 3918-3923 feet.

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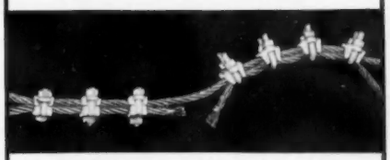

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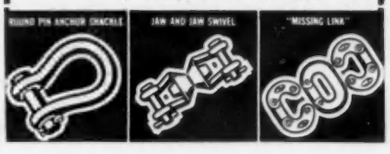

Texas Gulf Coast

Ogburn Prospect Test Shows Favorably at 6900 Feet

Mrs. Joyce Richardson and Christian-Carpenter Drilling Company apparently converted the Ogburn prospect, northwest Harris County, to a field when Emil Marks 1 flowed 15 stands of 54-gravity oil and a little mud on a 55-minute drill-stem test at 6918-26 feet. Pressure built up to 2700 pounds after 10 minutes. The zone had tested several stands of oil on drill-stem test before casing was run. Operators have installed separator and storage and were running tubing for completion. The wildcat, in the Ogburn Survey, was the fourteenth to be drilled on this prospect, which was found in 1930 with torsion balance by Cranfill-Reynolds Company.

Another Harris County wildcat, W. M. Hobson's Allen 1, Block 12 of the Charleston Gardens Subdivision, Green Survey, east of North Houston and southwest of Aldine, will be drill-stem tested at 7069-74 feet. Cores carried distillate. The test encountered gas sand at 6959-69 feet, believed to be the equivalent of that producing at Fairbanks and North Houston. Hole was taken to 7300 feet by Martin Thompson, contractor. Location is on a seismic closure against the fault which cuts the Aldine prospect and the southern portion of the Fairbanks-North Houston area. Allen 1 is a farmout to which Gulf Oil Corporation, Union Producing Company and Texas Gulf Producing Company have contributed.

Rowan & Nichols Oil Company will soon commence tests on Hubbard 1, wildcat on the North Liverpool prospect of Brazoria County, which was waiting on cement after landing pipe at 9670 feet. The well, 3 miles north of Liverpool and northwest of Chocolate Bayou, was held up by difficulty in getting sidewall cores from 9874 and 10,010 feet. Operators finally, however, pulled two 6-inch, two 5-inch, and two 4-inch cores showing 2.6 percent saturation. The wildcat, after electric log at 7900 feet, cored a show of oil at 8108-10 feet, water sand at 8117-21 feet, showed gas at 8000-10 feet, and cored broken gas distillate sands at 9094-10,107 feet and at 9110-34 feet. A drill-stem test at 9107-34 feet recovered 100 feet of 51-gravity distillate in 9 minutes under 500 pounds pressure. Heterostegina was topped at 7200 feet, Marginulina at 7500 feet, and Frio at 8100 feet.

Pipe Ready at Bailey's Prairie

East of the North Liverpool wildcat, Phillips Petroleum Company is clearing titles in the Hooper and Wade Surveys, and a location is expected soon. Another Brazoria County wildcat, Glen McCarthy's Munson 1, on Bailey's Prairie prospect, was drilling below 11,790 feet, with 5-inch casing on the ground. Operators will set pipe soon to test possibilities encountered in the last 700 feet of hole. The test registered a strong gas kick at 11,500 feet. The attempt is assigned a good chance of production within the week.

The Texas Company recovered 400 feet of distillate, mud and water under 450 pounds pressure at 8290-8300 feet in Pierce 1, wildcat on the Blessing prospect, Matagorda County, to encourage belief that this well will register the fourth Gulf Coast strike of 1940. Operators would not reveal the quantity or gravity of the distillate, nor plans for final completion. A drill-stem test at 7914-31 feet recovered 200 feet of distillate and 400 feet of mud in 7 minutes. This prospect was found by Gem Oil Company and Humble Oil & Refining Company, the latter company becoming the principal leaseholder by acquisition of the former's acreage. The Texas Company took 4500 acres south of the town of Blessing after reflection seismograph work. The company's Taylor 2, wildcat on the Sugar Valley structure, was drilling at 7450 feet, toward projected depth of 9700 feet.

Rumors of another deep test for the Spurger area of Tyler County followed Dick Schwab's abandonment of Fletcher Lumber Company 1, E. Thompson Survey, at 7710 feet. R. W. Milner and A. F. Fisher, of Houston, and A. H. Howan and M. Q. Peterson, of New Orleans, have leased 110 acres of Lodwick Lumber Company land, with the rumored intention of an immediate test. Fletcher Lumber Company 1 topped Hockleyensis at 3876 feet, Operculina at 4546 feet, and Cockfield at 4556 feet.

General Crude Oil Company, sole operator at Esperson Dome, Liberty County, was moving rig to Davis 21, projected 8000-foot attempt to establish deep north flank production. Operators found deep production at 7300 feet on the southeast flank of the dome in January, 1939. Two previous attempts to duplicate on the other side of the dome have not succeeded. Davis 9 lost hole after a blowout and fire at 8300 feet, and Davis 20 was completed as a gas well at 7055-7105 feet after being drilled to 9734 feet. Oil shows in the 8300-foot horizon encouraged the drilling of Davis 21.

In Wharton County, Titantic Oil Company will drill Goar 1, west offset to Carlson 1, Hillje area pumper. Location is in Section 3 of the M&C Survey. The company has just completed Kountze 1 as a gasser at 4020 feet. In the Spanish Camp gas field, Martin Thompson staked Northington 1, shallow test in the Austin Survey. Thompson's Sisk 1, 3000 feet northwest of production in Markham field, Matagorda County, was rigged up for a shallow test.

In Montgomery County, Continental Oil Company was still fishing for twisted-off drill stem in Bender Estate 1, Spring area wildcat. A stuck drill stem at 11,213 feet forced an attempt at sidetracking at 11,000 feet which failed. D. B. McDaniel's Baldwin 1, Tamina wildcat in the same county, was swabbing a little oil after reperforating at 9370-9400 feet.

Fairbanks Proration Order Attacked

Herbert E. Williams has filed suit in federal court at Austin attacking the Texas proration order of the Texas Railroad Commission for the Fairbanks field, Harris County. Williams owns 14 wells.

The petition asserts that the statutes of Texas provide that a minimum of 10,000 barrels may be assigned to new fields, and further, that the allowables at Fairbanks have been cut below the marginal limit.

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Cockfield Horizon Opened at Eola, Avoyelles Parish

Eola field, Avoyelles Parish, added the Cockfield sand to the Wilcox producing horizon when Sid Richardson's Glaze 9 tested 230 barrels of pipe-line oil daily through 3/16-inch choke from 64 perforations at 6430-46 feet. Tubing pressure was 550 pounds, casing pressure 700 pounds. The well, which made wash water during the test, was being allowed to clean for potential test. The addition of a new formation to the already considerable reserve indicates that Eola, now producing 14,000 barrels daily, will exceed Ville Platte and Jennings to become the state's foremost field. All previous wells have been completed in the Wilcox at 8500-8600 feet, although the Cockfield has frequently afforded strong indications of commercial production. Opening of the Cockfield seems to exhaust the new sand possibilities in the field, as Sid Richardson abandoned Haas Investment 1-B, mile north outpost, at 9400 feet, with no shows reported.

West Mermentau, Acadia Parish, became a producer as H. M. Naylor Oil Company's Acadia Development Company 1, 2½ miles southwest of South Jennings, flowed 6 barrels of 40-gravity oil hourly through 3/16-inch choke from the Heterostegina zone at 9705 feet. Production did not hold up, due to faulty cement seal, and the wildcat was waiting on cement after squeezing perforations at 9705-18 feet. This strike is the ninth for coastal Louisiana in 1940. It is in the center of a 6500-acre block, and Continental Oil Company is the next most prominent leaseholder in this area. The Naylor well topped Marginulina at 9980 feet, Heterostegina at 9440 feet, and Discorbis at 8956 feet.

In Acadia Parish, Vincent & Welsh and E. J. Nicklos' McManus 1 continued to bid for the coast's tenth 1940 discovery, flowing 24 barrels of 25-gravity oil daily through ¼-inch choke from perforations at 3525-35 feet. Tubing pressure was 680 pounds, casing pressure 750 pounds. On drill-stem test, it registered 1000 pounds pressure, indicating the prospect, known as Trilby, Richie, North Iota or Mowata, where previous attempts have had plentiful shows but no pressure, was in line for production. The structure, which centers around Sections 16, 20, 26 and 29-7s-1w, northeast of Tepetate field, was found by Gulf Refining Compny in 1934 by seismograph. Humble Oil & Refining Company and Sun Oil Company have also worked the structure. Jack Dalton drilled Setting 1, Section 17-7s-1w, in 1938, abandoning at 5119 feet. Humble Oil & Refining Company, Sun Oil Company and Federal Petroleum Company are the principal leaseholders in this area.

The task of proving Belle Chasse, Plaquemines Parish, as a commercial producer apparently falls to The California Company's Delta Minerals 1, lease 5, now drilling at 7575 feet, 2400 feet above the Miocene sand which flowed initially 250 barrels daily in the company's Delta Minerals 1, lease 7. The latter well showed a large water cut immediately after completion, which has not been corrected by numerous squeeze jobs and reperforating. On test at 9966-72 feet it flowed 19 barrels of fluid hourly through 3/16-inch choke, with 75 percent brackish water. When squeezed and reperforated, the same zone made 37 barrels of fluid hourly, but showed a 90 percent water cut. Operators have resqueezed for another test. This field was the eighth to be found in 1940 in South Louisiana, but must revert to the prospect class if the discovery well continues to drown.

T. G. Markley & Mohawk Oil Company are pulling screen to recomplete Dousson 2, 1¼-mile north extension to the Valentine field, LaFourche Parish. On latest test the wildcat flowed 301 barrels of 47-gravity oil daily through 14/64-¼-inch chokes, with tubing pressure 60 pounds, from 6998-7019 feet.

A new sand at Bayou Choctaw, West Baton Rouge Parish, may result from tests in Standard Oil Company of Louisiana's Cypress 2, which logged broken oil sands. Oil string was set on bottom at 8600 feet. Shows were found in broken sand section from 8335-57 feet, with other shows at 8436-46 feet, and 8522-33 feet.

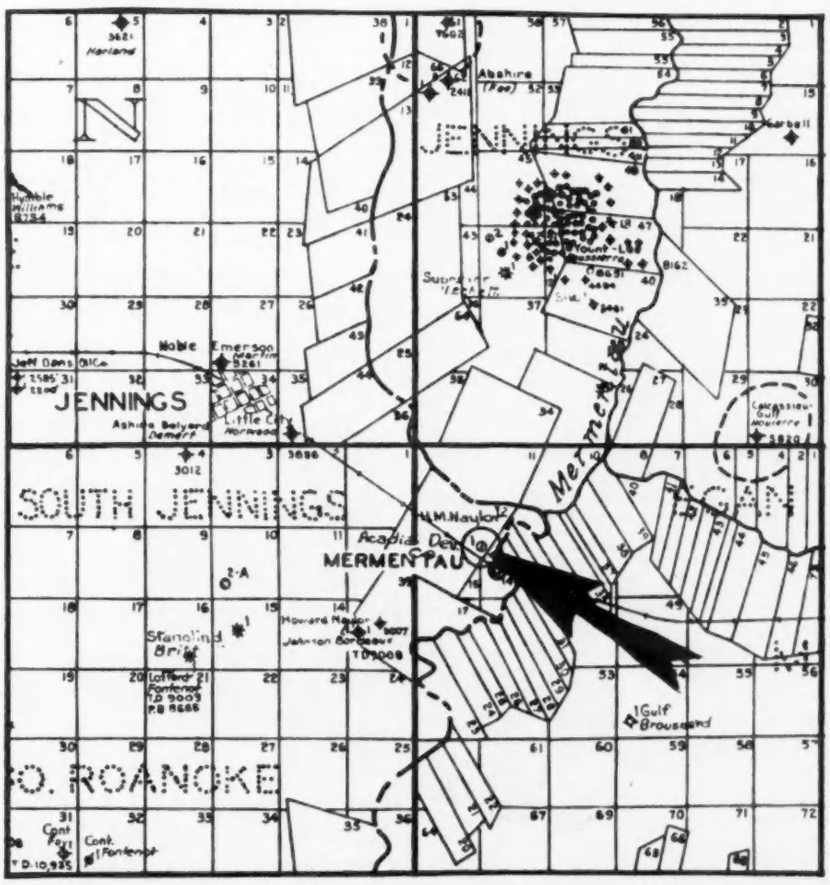
In Jefferson Davis Parish, Union Sulphur Company's Miller 1, north extension attempt in the Woodlawn field, has been killed for recompletion. On a test at 9610 feet the well made 460 barrels of fluid, 95 percent water, through ¼-inch choke. Oil sands were cored at 9515-31 feet, 9545-60 feet, and 9590-9615 feet.

On the southeast flank of Jennings field, Acadia Parish, Welsh and Robinson have located Houssiere-Latrielle 1, Section 47-9s-2w. In the North Crowley field, Humble Oil & Refining Company's Quebadeaux 1, northeast outpost, is drilling below 9000 feet. A drill-stem test at 8850 feet recovered mud and salt water.

Sun Oil Company is making drill-stem test of Planters Lumber Company 2, flank well at Fausse Point, Iberia Parish, at 6360 feet. The test bottoms in salt at 6519 feet.

Wildcat starts, including the Burford & Bateman 10,000-foot test of the South Lake Charles dome, were four in number. Others were Midstates Oil Corporation's Schwing 1, Section 56-12s-7e, Iberia Parish, The Texas Company's Bayou Peter 1, in the Delta Farms area, Section 26-16s-22e, and W. T. Burton's State 4 in Lake Pontchartrain, Orleans Parish, 7000 feet southwest of the lighthouse on Point Aux Herbes, 10s-3e.

Sun Oil Company is testing Kling and Walet 2, second attempt in the new 1150-foot sand of the Fausse Point, Iberia Parish, field. Kling and Walet 1 flowed 70 barrels daily from this sand, which is reportedly present in the current test, although first attempt at completion was in a dry gas sand at 900 feet.



West Mermentau, Acadia Parish, became coastal Louisiana's 9th discovery for 1940 as H. M. Naylor's Acadia Development Corporation 1, flowed 6 barrels of 40-gravity distillate hourly from the Heterostegina at 9705-18 feet.

North Louisiana

Oil Limits of Olla Field Extended Two Miles South

Oil producing limits of the shallow Olla field, LaSalle Parish, were extended over 2 miles south when Placid Oil Company (H. L. Hunt) completed Louisiana Central Lumber Company 18, C SW NW 36-10n-2e, at 2423 feet, flowing 142 barrels of oil in 24 hours through ¾-inch tubing choke with tubing pressure of 85 pounds and casing pressure of 590 pounds. Initial flow contained 1½ percent basic sediment. The well topped Wilcox at 1580 feet (elevation 148 feet) and casing was perforated with 10 shots at 2229-34 feet. This test is a south offset to the same operator's Louisiana Central Lumber Company 16, in the same section, recently completed in the Wilcox as a 15,000,000 cubic foot gas well.

Six new locations were announced for Olla, which now has 14 oil wells with a lone completion for the last week.

Two wildcat locations were announced, one in LaSalle Parish and the other in Caddo Parish, the latter two miles north of the old shallow Dixie field. Two wildcat blocks have been assembled in Cass County, Texas. Near Altillo, Henry King et al secured acreage for a 4000-foot test to start by July 1, and near Linden, Ryan Consolidated Oil Corporation took a block and is now making geophysical survey.

Shell Oil Company is negotiating with Lodwick Lumber Company and others for leases on all horizons below 600 feet on a large amount of acreage in and around the old shallow Bellevue field, Bossier Parish, in 19n-11w. Most of this acreage is the same on which Tide Water Associated Oil Company recently secured the shallow (Nacatoch) rights.

On this acreage at Bellevue, Tide Water Associated Oil Company made plans for 24 shallow wells for a water repressuring project. Sixteen will be oil wells and nine water-injection wells. Estimates of recovery range to 10,000 barrels per acre. The crude is a lube oil comparable to Gulf Coastal crude.

Arkansas

Blossom Added in Ouachita Section of Smackover Field

Standard Oil Company of Louisiana has staked an offset to its Paluxy-sand discovery which a fortnight ago opened the Fouke field in Miller County. W. P. Sturgis 2 is in SE NE SW 1-17-27. The discovery, W. P. Sturgis 1, C NW SE 1-17-27, was completed after perforations in the Paluxy at 3576-3606 feet.

A gauge of Atlantic Refining Company's Bodcaw Lumber Company 1, C NE SW 29-17-23, LaFayette County, near McKamie, completed at 9221 feet in Smackover lime to open a new deep distillate field, showed 12 barrels of distillate per hour through 10/64-inch choke with pressures on casing of 3150 pounds and on tubing of 2875 pounds. An offset location is being made by the company.

Northwest of Fouke, Miller County, J. W. Love et al are taking a block around Sections 8, 9 and 10-17-28, and Oliphant Oil Company is leasing in the same area.

Following closely first completion of a producing oil well in the Blossom (Ozan) sand in the Nick Springs area, an offshoot of the old Rainbow City field, Union County, was completion last week of an oil well from the Blossom in the Ouachita County part of the old shallow Smackover field. Sam M. Richardson's J. Goodwin 10, SE NE SW 32-15-15, was drilled to 4320 feet, and plugged back and casing perforated at 2602-16 feet with 20 shots to yield 50 barrels daily at that level. With elevation of 121 feet, it topped Nacatoch at 1966 feet, Meekin sand at 2290 feet, Graves sand at 2383 feet, Blossom at 2595 feet, and red beds at 2712 feet.

The southern limits of the Atlanta field, Columbia County, were defined to the south when Grady H. Vaughn et al abandoned J. M. Talley 1, N½ NW SE and N½ NE NW 15-18-19, with salt water at 8220 feet. Tide Water Associated Oil Company, drilling an offset, shut down, leaving the field without a drilling operation, although the company made a new location there.

The Magnolia field, Columbia County, has three drilling operations, with the only other active location there waiting on rig. One test is drilling in the Dorcheat field, Columbia County, and a wildcat test is drilling in Columbia County and another in Union County.

Mississippi

Five Wildcats Among Eleven Starts; Tinsley Further Proved

Eleven new locations were announced in Mississippi last week of which five were wildcats and six were for tests in the Tinsley Dome field, Yazoo County.

The eastern edge of production at Tinsley Dome was further defined by abandonment of Whigate & Sanford's Robertson 1, NW SW NW SE 20-10n-2w, at 5350 feet in sandy lime, after topping black shale at 4175 feet (elevation 340 feet). Tinsley Dome's new locations were offsets to producers.

The five new wildcat locations were in as many different counties, Carroll, Jones, Kemper, Warren and Wayne. One wildcat test was abandoned, Gulf Refining Company's T. P. Carson A-1, C NE 2-21n-1w, which drilled to 6004 feet in igneous material after logging top of chalk at 2570 feet and top of Eutaw (Blossom) at 3275 feet. Elevation was 145 feet.

In the Pickens field, Yazoo County, which has two oil producers, Exchange Oil Company's Wilburn 3, NE 31-12n-3e, logged saturation in the Wilburn producing sand at 4863-69 feet, the former being top of the sand, after recovering 7 feet of sandy shale in a core at 4855-63 feet. This test topped Wilcox at 1288 feet, Midway at 1320 feet and the chalk at 3924 feet. In the same area, Hill & Hill's W. A. Montgomery 1, SE SW SE 24-12n-2e, after topping Midway at 3160 feet and chalk at 3956 feet, had a fishing job at 4385 feet in chalk.

In Clarke County, Arkansas-Mississippi Corporation's Long-Bell 1, C SW NE 35-3n-17e, a wildcat, was shut down at 4585 feet in red beds after topping Selma chalk at 2170 feet.

A Madison County wildcat, Ralph A. Johnston's F. H. Ray 1, C SE SW 6-8n-3e, with elevation of 230 feet, drilled below 6262 feet in Tuscaloosa (Woodbine) after recovering salt water in that formation at 6190-6205 feet. This test topped Wilcox at 1630 feet and chalk at 4568 feet.

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Rocky Mountain Fields

Jicarilla-Apache Reserve Opened to Exploration

Rocky Mountain activity continued a steady climb, with 7 first reports of wildcats, tests in semi-proved areas or extension tests.

Marking the opening of the Jicarilla-Apache Indian reservation for oil and gas exploration, Continental Oil Company and Lafayette M. Hughes Estate, Denver, spudded Tribal 1, CSL SE NE 22-31n-1w, San Juan County, northwestern New Mexico. The reservation consists of 750,000 acres.

In February, 3 tracts offered at auction sale were leased to Continental Oil Company and the Hughes Estate, consisting of 4322 acres on the Dulce Dome, 640 acres on the Monero Dome and 482 acres between the twin-highs. Tribal 1 will drill with standard tools, and is located on the east structure of the Monero-Dulce uplift, which consists of two highs separated by a fault. Mancos shale is surface formation, and objective is the Dakota at 2000 feet. Paul S. Ache, of Tulsa, drilled two tests on the Monero structure several years ago. They encountered good oil shows in the upper Dakota, but developed water in the bottom of the formation. Recent surveys indicate these wells were located considerably down-structure.

Pierre LaFleiche et al have started operations on a test in eastern Wyoming, Dober 1, NE NE NE 21-45n-63w, Weston County, on 17,500-acre block on the Six-Mile Basin structure. Objective is the Dakota series with the Muddy sand anticipated at 3500 feet.

A small gasser was completed in the semi-proved Winnifred area of Fergus County, northern Montana. Emmons et al's Government 3, W NW NW 5-21n-18e, flowed 200,000 cubic feet initial from the Eagle sandstone at plugged-back depth of 450 feet.

Prospects of a well ranging from 600 to 900 barrels daily in light oil production were seen in Mountain Fuel Supply Company's Florence Wilson 5, SW SW NW 23-12n-100w, in the Hiawatha field, Moffat County, northwestern Colorado. The test was being placed on production test from 3 sands. From lower sand at 2513-40 feet, the well made 200 barrels daily, from the second sand 250 barrels daily at 2260-2335 feet, and around 250 barrels daily from the first sand at 2005-2125 feet. While for a number of years, old gas producers in the Hiawatha field have produced nominal amounts of oil, this is the first significant oil developed in the field. It is expected that the Hiawatha field will be an area of active drilling for oil for the next several years, and more than possibly will see the laying of a pipeline from the field to the Utah Oil Refining Company's line to Salt Lake City, which crosses southwestern Wyoming, 60 miles north of the field.

The Hiawatha well also sheds favorable light on three important operations in the Baxter Basin area north of Hiawatha and across the state line in Wyoming. Among these are Union Gas Company's Hummer 1, NW NW NE 6-17n-103w, in the South Baxter Basin gas field, a new start, drilling below 260 feet with cable tools; Gus Pongratz et al's Clark 1, NE NE NE 22-19n-104w, North Baxter Basin field, and Red Desert Corporation's Edith Aspden 1, NW SW NW 34-18n-103w, Middle Baxter Basin, rigging-up rotary. Mountain Fuel Supply Company started deepening operations in R. D. Murphy 1, SE SE SE 26-17n-104w, South Baxter Basin field, an old gas producer from the Dakota at 3425 feet which will be carried down for a Sundance test.

Mounta Fuel Supply Company was preparing to move in rotary for R. D. Murphy 5, CSW NE SW 15-3n-24e, a gas test in the Clay Basin field, Daggett County, northeastern corner of Utah. The company's government 1, CSE NE NE 19-3n-24e, same field, showed 260,000 cubic feet of gas daily from the Frontier sand and was deepening below 5865 feet, headed for the Dakota formation.

Tensleep extension test in the Wertz field, Carbon County, south central Wyoming, Sinclair-Wyoming Oil Company's Wertz 14, NW SW NE 7-26n-89w, had top of the Sundance at 3950 feet, set 9⅝-inch casing through the sand to 4207 feet, and was deepening below 4447 feet, nearing objective. The company's extension test southeast of gas wells in the Big Sand Draw field, Fremont County, Unit 12, CSE NW 23-39n-95w, topped Wall Creek formations at 2950 feet and was drilling below 3786 feet.

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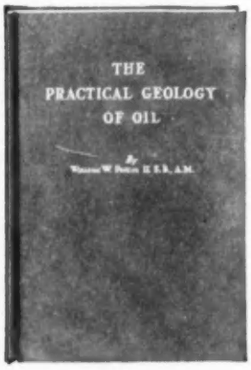

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California

Strike Indicates 2-Mile Coalinga Nose Extension

The Pure Oil Company's Schwinn Estate 44-30B, outpost in Section 30-19-16, northeast Coalinga district, Fresno County, on formation test indicated a possible 2-mile north extension of Coalinga Nose field. Test on 11-foot sand section above 8183 feet resulted in flow at 2000-barrel daily rate of 28.9-gravity oil through a ⅜-inch choke with only a small amount of gas.

Unusual performance is believed to point to one of two conclusions: either the well is an edge producer in the Amerada pool, where wells located higher structurally have been heavy gas producers, or it is a 2-mile extension of the Nose field. Gravity of the oil and rate of gas flow conforms closely to wells completed in the Nose area proper.

Schwinn Estate 44-30B is ½-mile south of Bandini Petroleum Company's 51-30B, Amerada pool outpost which picked up edge production in the Amerada zone. The Bandini well was about 100 feet higher structurally than The Pure Oil Company test. Should the latter disprove earlier geology on the area, Standard Oil Company of California would be the principal beneficiary since it holds in fee the four offsetting sections.

In Ventura Avenue field, Ventura County, Tide Water Associated Oil Company completed McGonigle 17, flowing at an initial rate of 1417 barrels daily, 29.4-gravity clean oil and 1,252,000 cubic feet of gas. Bottom was reported at 10,050 feet. California Alliance Petroleum Corporation is coring Schmidt 1 in this field below 9050 feet after running formation tester at 8836-9050 feet. Results were not announced.

In the Shiells Canyon area of Ventura County, Santa Clara Petroleum Company's C-1, Section 3-3-19, has been placed on pump and is expected to make a 100-barrel producer. On initial test, it flowed 550 barrels of oil and drilling fluid, but immediately died. After 48 hours of swabbing, it was placed on pump.

Standard Oil Company will abandon Calver-Klassen Community 1, Section 20-29-26, Greeley field in Kern County. Bottomed at 7795 feet and plugged back to 7750 feet, with water string set at 7681 feet, production has declined to the point where it is no longer a commercial producer. Location is in the southwestern part of the field.

Michigan

Allegan County Well Pumps Eight Barrels for New Pool

The second shallow lime discovery for the month was completed as testing operations continued on two other promising wildcats, one in the basin and the other in the "thumb."

Keyson Oil Company's Steele 1, NW NW SW 32-2n-11w, Martin Township, Allegan County, pumped 8 barrels net from Traverse at 1621 feet after acid, and on a 6-day pumping test appeared to be good for between 7 and 12 barrels per day. It was the second discovery for Allegan County in June, but lacked immediate prospects of bringing any big drilling campaign. H. C. Nelson's Peters 1, Section 8-4n-14w, Overisel Township, the other Allegan discovery, to date has resulted in seven new tests. Peters 1 initialed 345 barrels natural from Traverse.

First attempts to acidize Teater & Markles' Johnston 1, Section 8-17n-14e, Bloomfield Township wildcat, Huron County, failed, but last week 140 gallons of acid went into the formation after the tubing packer had been raised 2 feet. The wildcat carried from 600 to 900 feet of oil natural, and flowed 25 barrels on a swab test after the 150-gallon treatment. Operators planned to continue acidizing attempts.

In Grout Township, Gladwin County, Sun Oil Company's Cameron 1, Section 10-18n-2w, six miles west of the Buckeye pool, cemented 5-inch casing, originally mudded, in preparation for a second acid attempt. This test carried between 600 and 1100 feet of oil natural over a 5-day period. First acid went back of the casing.

Sun Oil Company announced intentions to tube and acidize Whitaker 1, NE NW NE 33-11n-8w, Pine Township, Montcalm County, a semi-wildcat, after logging an oil/gas pay in the Traverse at 2785-96 feet. Top of lime was at 2761 feet. The test is 1¼ miles southeast of Gentry Engineering Company's Christensen 1, completed in 1938 as a Traverse-lime discovery. This well, still producing about 28 barrels of oil and 20 barrels of water per day, has recovered about 18,000 barrels of oil. However, attempts to define a pool thus far have failed.

C. L. Maguire, Inc.'s Clark 1, Section 32-16n-2w, Warren Township, Midland County deep test, was ordered junked at 5117 feet. It had the top of the Sylvania at 5114 feet, and was carrying a hole full of water after standing 2 weeks at the abandonment depth. Junking of Clark 1 eliminated any immediate possibility of a new state depth record, held by Newaygo Oil & Gas Company's Bates 1, Newaygo County, completed in 1935 at 6674 feet.

Drilling in a hole full of Monroe water, Carter Lease, Inc.'s Fee 6, Section 18-13n-1w, Porter Township, Midland County, now is the only active basin deep test. It was drilling below 4566 feet.

Swanson Consolidated Oil Company started drilling Fletcher-LaQuea 1, SE SW SE Section 32-7n-12w, Walker Township, Kent County, first Dundee-Monroe attempt in the state's biggest Traverse lime horizon oil field. To get the Monroe, the company probably will have to go to 2200-2400 feet. Test originally was completed at 1750 feet for a Traverse well.

UNITED STATES WELL COMPLETIONS

Arkansas

Columbia County (Atlanta)—

Company, Well and Location	Init. Prod. Bbls.	Depth
G. H. Vaughn et al, Talley 1, 15-18-19	*	8220

Ouachita County (Smackover)—

Sam M. Richardson, Goodwin 10, 32-15-15	50	4320

Union County (Rainbow City)—

Ben Laney, Tr., Cutrer 1, 21-17-14.	*	3502

California

Kern County (Belridge)—

Belridge Oil Co., No. 10-1	185	8251

Kern County (Cole's Levee)—

Richfield, KCL-A 276-29	984	9125

Kern County (Kern River)—

Hast Oil Co., Kern 9	5	420

Kern County (Kern River Area)—

Sleeper Ridge Oil Co., No. 1	*	2517

Kern County (McKittrick Area)—

Otis Hoyt, Union 1	225	2526

Kern County (Paloma)—

Ohio Oil Co., KCL-B 2-43-3	1899	10,361

Kern County (Richgrove Area)—

Bolling Oil Co., Quinn 1	*	2460

Kern County (Rio Bravo)—

Superior Oil Co., Osborn 3-1	1435	11,493

Kings County (Kettleman Hills)—

Standard, No. 41-35Q	332	8305

Los Angeles County (Montebello)—

Kern Oil Co., Monterey 25	1471	7785
Taylor 3	220	7790
Montebello Reservoir Oil Co., Reservoir 1	175	7794
Standard, Kaufman Fee 1	300	7800

Los Angeles County (Wilmington)—

Barnhart-Morrow Cons. Wilmington Comm. 2	No Est.	3720
Long Beach Oil Dev. Co., No. 13	450	4072
No. 14	1051	4006
Edward D. Power, Power 17	149	3485
Union Pacific R.R. Co., U. P. 145	194	3825

Orange County (Huntington Beach)—

Southwest Exploration Co., State 29	172	4535
Standard, Bolsa 41	142	4800

Ventura County (Ventura Ave.)—

Tide Water, McGonigle 17	600	10,050

Illinois

Bond County—

Lomone Trust Co., Cummings 1, ne ne ne 29-2n-2e	*	477

Clinton County—

Brookside O. & G. Co., C. B. & Q. RR. 7, sw nw sw ne 1-1n-1w	2400	2995
Petro Oil Co., Langenfelt 1, ne se ne se 12-1n-1w	55	2958
W. C. McBride, Carson 8, swc ne se 35-2n-1w	10,800	2913
Gulf, Adams-Felton 1, sw ne nw nw 1-1n-1w	5065	2910
Beuhler 5, e½ nw nw 1-1n-1w	7971	2909
Beuhler Comm. 3, cw½ sw nw 1-1n-1w	2960	2903
Adams-Kaelin 1, ne se nw sw 12-1n-1w	383	2909
Gulf & Shell, Schmitz-Koelmel 1, e½ ne se 2-1n-1w	4313	2889
Gulf Ref., Beuhler 21, cw½ se nw 12-1n-1w	2168	2919
Samedan Oil Co., Hanseman 1, nw nw se 1-1n-1w	1945	2886
Lippert-Felton 1, ne se se nw 1-1n-1w	2704	2918
Shell, Koelmel 5-C, se ne sw sw 1-1n-1w	3676	2885
Beuhler 9-C, nw sw ne nw 12-1n-1w	4968	2914
Paul Mosebach, Maddox 1, nw c ne sw 4-1n-3w	*	2528
Robben 4, ne sw se 5-1n-3w	157	2457

Edgar County—

H. C. Hawthorne, Hathoway 1, nw nw sw 17-14n-13w	*	1000
Ebb Pearcy, Sholem 1, nwc se se 13-14n-14w	*	440

Fayette County—

Texas, Black 1, ne ne sw 25-6n-2e	20	1598
Wright 9, ne ne nw 31-6n-3e	217	1583
Ohio, Swarm 13, se se ne 36-6n-2e	125	1610
Kisler 3, sw sw nw 31-6n-3e	192	1609
Zephyr, Smith 1, se se sw 31-6n-3e.	60	1633
Carter, McClain 9, se nw nw 4-7n-3e	300	1540
McClain 11, se ne nw 4-7n-3e	54	1586
McClain 4, ne ne ne 5-7n-3e	666	1589
Owen 4, ne nw nw 17-7n-3e	558	1583
McCollum 3, ne nw sw 2-8n-3e	42	1576
Holman 2, nw ne ne 10-8n-3e	252	1594
Drees 1, nw sw ne 12-8n-3e	168	1503
Kagey-Grames 2, se sw sw 13-8n-3e	198	1540
Sealock 2, ne se ne 27-8n-3e	90	1543
Whisenant et al, Lilly 18, se nw se 16-8n-3e	125	1510

Hamilton County—

Kingwood, Wilson 4, sw ne se 6-6s-7e	504	2716
Ohio, Wilson 2, nw sw ne 6-6s-7e	186	2723

Jasper County—

Pure, Albright 1, ce½ ne se 28-6n-10e	*	2971

Jeferson County—

Magnolia, Brink 1, ne sw ne 23-3s-3w	4	1298

Lawrence County—

Scott-Gray, Fee 3, cw½ sw 18-4n-10w	¶.22	1331

Marion County—

Etheridge, Bealer 1, se nw sw nw 7-1n-1e	*	1150
Texas, Carr 7, nw nw ne 5-1n-23	1950	3427
City of Centralia 57, nw sw nw ne 5-1n-2e	1669	3401
Hawthorne 32, swc ne se 5-1n-2e.	240	1882
Kalkbrenner 28, nw ne se sw 5-1n-2e	168	3459
Kalkbrenner 29, se ne se sw 5-1n-2e	160	3470
Pittenger 10, nw se ne ne 5-1n-2e	2331	3471
Small 14, nwc ne ne 5-1n-2e	2640	3465
Small 16, nw sw ne ne 5-1n-2e	2800	3460
Carr 6, cn½ nw nw 8-1n-2e	840	2070
Fyke 15, cs½ ne sw 8-1n-2e	280	2105
Chapman 26, sw nw ne sw 28-2n-2e	101	3484
Lee 16, ne nw ne sw 28-2n-2e	380	3468
Friedrich 23, ne sw sw nw 29-2n-2e	883	3450
Friedrich 28, swc sw 29-2n-2e	475	3409
Dunning 17, sw ne se se 30-2n-2e.	1331	3410
Friedrich 32, ne se ne 30-2n-2e	750	3515
Stroup 21, nwc se sw 30-2n-2e	1449	3518
Reed 8, sw nw se 31-2n-2e	1200	3394
Stroup 15, ne se nw	2063	3375
Williams 23, nw se se se 31-2n-2e.	3271	3345
McConnoughhay 8, sw se se se 32-2n-2e	2468	3500
Farthing 8, se nw ne sw 33-2n-2e.	1705	3547
Sands 11, sw ne nw sw 33-2n-2e.	428	3531
Pugh, Toulme 3, sw se sw sw 30-2n-2e	4192	3530
Carraher, Fyke 1, nw se nw 17-1n-2e	67	1898
Cameron et al, Robinson 1, cn½ ne sw 4-2n-1e	*	1097
Haynes & Thomas, Chitwood 2, sw ne se 21-2n-2e	*	3601
Magnolia, Chitwood 50, nw sw ne sw 16-2n-2e	600	3525
Shanafelt 36, ne nw nw 21-2n-2e.	2304	3521
Chitwood 52, nec sw 28-2n-2e	818	3521

Richland County—

DeKalb, Schilling 2, ne sw se se 32-4n-9e	400	2650
Pure, Bauman 1, ce½ ne se 12-4n-9e	262	2985
Kermicle 1, cw½ nw ne 31-5n-10e	19	2900

Shelby County—

W. B. Johnson, Schaffee 1, nw ne 27-10n-5e	22	1961

Summary of Drilling Operations in the United States, Week Ended June 22, 1940

	WELLS COMPLETED							*PERMITS FOR NEW WELLS				
	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total 1940	Total this Date 1939	This Week	Total this Month	Total 1940	Total this Date 1939	Year Total 1939
Alabama	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....
Arizona	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arkansas	3	1	.....	2	50	94	110	2	8	68	110	223
California	21	19	.....	2	9,989	646	507	21	49	531	493	1,174
Colorado	.....	.....	.....	.....	.....	3	11	.....	.....	.....	.....	.....
Florida	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Georgia	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Illinois*	91	82	1	8	95,472	1,792	1,757	73	336	2,107	.....	893
Indiana	16	3	2	11	306	198	81	.....	.....	.....	.....	.....
Kansas	53	40	.....	13	79,084	888	621	49	94§	951	697	1,583
Kentucky	9	3	1	5	28	136	293	.....	.....	.....	.....	.....
Louisiana	25	19	1	5	4,614	805	483	35	102	810	622	1,449
Michigan	24	14	.....	10	2,017	613	653	23	70	571	631	1,419
Mississippi	3	1	.....	2	500	95	4	.....	.....	.....	.....	.....
Missouri	.....	.....	.....	.....	.....	6	.....	.....	.....	.....	.....	.....
Montana	5	4	.....	1	292	79	52	.....	.....	.....	.....	.....
Nebraska	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Mexico*	9	7	.....	2	1,234	357	299	9	24	332	.....	293
New York	21	21	.....	.....	49	502	231	.....	.....	.....	.....	.....
North Dakota	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio	34	14	9	11	136	423	403	.....	.....	.....	.....	.....
Oklahoma	43	26	3	14	1,807	1,061	995	28	55§	893	1,012	2,059
Pennsylvania	43	39	3	1	46	1,252	631	.....	.....	.....	.....	.....
South Dakota	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Tennessee	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....
Texas	233	181	5	47	112,456	5,168	4,725	239	587	6,030	5,189	10,269
Utah	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
West Virginia	10	2	6	2	25	264	227	.....	68	190	291	718
Wyoming	2	1	.....	1	90	63	61	.....	.....	1	.....	.....
Total this week	645	477	31	137	306,178	14,402	12,146	479	1,393	12,484	9,045	20,075
Total last week	728	508	49	171	227,309	13,757	11,642	595	914	12,005	8,680	20,075
Total this year	14,402	10,563	776	3,063	5,542,479	.....	.....	.....	.....	.....	.....	.....

* This tabulation includes those states where weekly data are available; figures for Illinois date from October 15, 1939; New Mexico from August 1, 1939.
† Includes water-input wells.
§ Figures for Oklahoma and Kansas not available for week of June 8, 1940.

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth
Wabash County—		
Longhorn Oil, Hell 8, sec nw nw 18-3s-13w	100	2514
Washington County—		
Magnolia, Kozuszek 3, sw se nw 26-3s-3w	75	1283
Wayne County—		
Pure, Barth 1, sw ne nw ne 5-1n-8e	949	3090
Hubbel 3, cw½ se sw 33-2n-8e	269	3100
Roache & Voyles, Milner 2, cw½ sw se 33-1s-7e	4	3341
Oil Well Dr. Co., Hilliard 3, cn½ se nw 34-1s-7e	236	3295
H. H. Weinert, McPherson 1, ne ne nw 3-2s-7e	720	3233
White County—		
H. H. Weinert, Andrews 3, swc nw sw 20-3s-8e	135	3431
Jarvis Bros., Coole 1, sw se sw 28-3s-9e	113	3499
Fortner, Calvin 2, nw ne sw 9-4s-14w	170	2223
Sun, Greathouse 6, ne ne nw 4-5s-14w	150	2906
Garner 2, sw sw se 1-5s-10e	100	2990
W. C. McBride, Green-Starr 3, ne sw ne 25-6s-8e	259	2535
Exchange Oil Co., Storms 8, sw se nw 14-6s-9e	25	2269
Storms 9, nw se nw 14-6s-9e	235	2274
Skelly, Storms 6, se sw nw 14-6s-9e	130	2261
Storms 7, ne sw nw 14-6s-9e	125	2270
Penn.-Ill., Pyle 3, cw½ se ne 12-6s-8e	85	3161

Indiana

Company, Well and Location	Init. Prod. Bbls.	Depth
Daviess County—		
J. W. Cannon, Evans 2, sw se ne 8-2n-5w	26	632
Decatur County—		
Hoosier Public Utility, Kelton 211, sw sw 11-9n-9	¶.21	915
Dubois County—		
L. A. Albertson et al, McKown 1, swc se se 32-1s-5e	*	1000
Gibson County—		
Dee & Dee, Chappelle Est. 1, ne se 99-1s-10w	*	1189
Midwest Dev. et al, Bower 1, sw c se se 10-2s-9w	80	1635
W. C. McBride, Blair Est. 1, se se nw 13-2s-12w	*	2425
A. J. Walker, Smith 1, nw ne nw 24-3s-9w	*	1765
Joe Bander et al, Cooper 33, ne ne sw ne 24-3s-14w	*	2106
Huntington County—		
M. J. Anderson, Hays 1, ne nw nw sw 6-26n-10e	*	1033
Jasper County—		
Clapsaddle & Harris, Allen 1, nw ne se se 34-32n-5w	*	1200
Knox County—		
Newton, Like et al 1, ne se se ne 17-2n-9w	*	1935
Posey County—		
Harry Sandler, Keck 1, ne c sw nw 34-3s-14w	200	2813
Nash Redwine, Reis 1, sw sw ne	*	...
Spencer County—		
Indiana Utility Corp., Rupp 1, sw se ne ne 6-4s-4e	*	995
Mecca Oil Co., Seay 1, nw nw sw 32-7s-6w	*	917
Blosser et al, Harvey 1, nw sw nw 4-8s-6w	¶.70	624

Kansas

Company, Well and Location	Init. Prod. Bbls.	Depth
Barton County—		
Day, Dolecheck 1, nwc sw 13-16-12w	3000	3346
Black-Marshall, Weber 2, cs½ ne se 14-16-12w	1288	3364
Shell, Bitter "C" 1, csl sw ne sw 5-16-13w	3000	3354
Bitter "B" 12, swc se 6-16-13w	3000	3353
Spencer et al, Geminhardt "A" 4, csl se ne sw 36-17-11w	488	3294
Carlock et al, Jenke 1, cw½ nw nw 7-18-11w	*	3460
Champlin, Fiege 1, ce½ se ne 22-20-11w	*	3415
Bartlett et al, Hulme 1, ce½ se sw 9-20-12w	*	3445
Butler County—		
Molk, Wagoner 2, se ne sw 29-26-6e	35	2765
Wixon et al, Bolan 1, se sw ne 1-27-6e	*	3105
Rex-Morris et al, Greenley 1, nec se 16-28-7e	35	2672
Plymouth et al, Creed 1, nw se sw 17-29-4e	20	1878
Cowley County—		
Garden et al, Rahn 1, nwc sw 13-34-5e	*	2984
Douglas County—		
Keriyn, Wise 1, c se sw 28-12-20e	*	1588
Ellis County—		
Carlock et al, Thurston 1, cw½ ne sw 18-11-16w	3000	3347
Darby, Henderson 7, cw½ nw nw 7-11-17w	3000	3447
Hollow et al, Cress 3, cn½ nw sw 13-11-17w	*	3407
Palmer, Smith 1, cw½ ne ne 14-12-16w	1392	3073
Ellsworth County—		
Aylward et al, Haska 1, ce½ se se 6-16-10w	2321	3292
Prunty, Skalicky 1, cw½ nw nw 9-16-10w	3000	3272
Sharon et al, Navotny 1, cn½ nw ne 32-16-10w	*	3318
Magnolia, Zink 2, cs½ nw sw 32-17-10w	1140	3247
McPherson County—		
Republic Natural, Swanson 2, cn½ nw sw 18-20-5w	3000	3338
Ohio, Lindquist 1, cw½ ne se 19-20-5w	3000	3365
Sunray, Johnson 3, cn½ nw ne 31-20-5w	340	3381
Rice County—		
Continental et al, Pickerill "A" 5, sw nw ne 24-18-8w	2061	3180
Gulf, Ames 5, cn½ se nw 6-18-10w	3000	3230
H. & T. Dr. Co., Stout 4-A, cs½ sw ne 6-18-10w	3000	3236
McPherson Dr. Co., Patton 1, swc 9-19-9w	3000	3213
McBride, Hodge 4, cn½ se ne 25-20-6w	135	3339
Rooks County—		
Krueger, Tatkenhorst "C" 3, cn½ nw sw 11-9-16w	486	3181
Hordendorf, Westhusin 1, ce½ ne ne 14-9-17w	*	3302
Russell County—		
Cities Service, Rochester 1, sec ne 11-13-18w	*	3258
Strecker "A" 10, cw½ ne ne 35-14-14w	3000	3174
Resner 2, sw ne sw 23-15-14w	3000	3351
Coralena, Graham 2, cs½ se se 21-14-13w	*	2968
Skelly, Colliver 7, cs½ nw se 28-14-13w	1324	2916
Neidens 14, csl se ne se 32-15-13w	3000	3333
Phil-Han, Letsch 2, nw ne ne 34-14-13w	2467	2849
Helmerich & Payne, Holl 3, csl sw nw ne 22-14-14w	315	3116
Darby, Strecker "B" 1, cn½ nw ne 25-14-14w	1852	2914
Stanolind, Michael "B" 3, cwl sw ne nw 36-14-14w	667	3159
Wolf Creek, Rouback "A" 3, cn½ sw ne 15-14-15w	3000	3246
Trapp et al, Gross 1, cn½ nw nw 5-15-13w	2150	2918
Shell, Sellens 2, sw ne sw sw 33-15-13w	3000	3344
Stafford County—		
Champlin, Snider 1, cn½ nw nw 3-21-11w	*	3446
Trigg & Allen, Mellies "A" 2, cs½ sw sw 36-21-12w	65	3574
Stanolind, Spangenberg 6, cs½ se nw 39-22-11w	*	3648
Siefkes 8, cs½ se ne 3-22-12w	1252	3609
Heggy 3, ce½ nw ne 10-24-11w	3000	3789
Sims 7, cw½ ne ne 11-24-11w	3000	3778
Deep Rock, Heggy 1, ce½ sw ne 10-24-11w	3000	3802
Transwestern, Banker "A" 2, cw½ ne se 10-24-11w	2251	3808

Kentucky

Company, Well and Location	Init. Prod. Bbls.	Depth
Breckinridge County—		
Gardner Dr. Co., Tate 1	¶.25	297
Barney Calvery, Harl Hrs. 2	*	192
Daviess County—		
J. C. Ellis, Fee 1	10	1740
J. W. McCummings et al, Thompson 1	*	1560
Hancock County—		
Lincoln Pet. Co., Huff 1	*	259
Rev. Hunger, Tr., Johnson 3	*	500
Ohio County—		
P. P. Murphy et al, Walker 2	8	282
Walker 3	10	379
Fred Hupp, Gentry 1	*	849

North Louisiana

Company, Well and Location	Init. Prod. Bbls.	Depth
Caddo Parish (Pine Island)—		
Marion Oil Co., Hart 7, 22-21n-16w	20	1027
E. A. Stiller, Stiles 3, 28-21n-16w	25	2360
Lloyd A. Farr, Muslow 1, 31-21n-15w	300	1510
Stanolind, Dorian 2, 18-21n-15w	10	1700
L. L. Sugar, Sample A-1, 32-21n-15w	50	1595
H. B. Burden, Fouche 1, 1-20n-16w	20	1476
C. J. Brown, Muslow 4, 5-20n-15w	50	1560
Claude Ferguson, Dickson 1, 3-20n-15w	90	1524
La Salle Parish (Olla)—		
Placid Oil Co., La. Cent. Lbr. Co. 18, 36-10n-2e	142	2423
Madison Parish (Wildcat)—		
H. L. Hunt, Ayer Timber Co. 1, 18-15n-10e	*	3486
Union Parish (Monroe)—		
Memphis Nat. Gas Co., Potts 2, 15-21n-3e	¶1.50	2193

South Louisiana

Company, Well and Location	Init. Prod. Bbls.	Depth
Abbeville—		
Continental, Baudoin 1	*	11,350
Grand Bay—		
Gulf, State 7 QQ	600	8770
Amerada, State-Mallard Bay 11	246	8957
Golden Meadows—		
Texas, Falgout Holding 13	158	5185
Eola—		
Amerada, Feret 1	649	10,170
Glaze 9 (new sand)	234	6446
Jeanerette—		
Herton, Banta 10 (new sand)	700	10,373
Neale—		
Atlantic, Spiers 1	420	8370
Quarantine Bay—		
Gulf, State 17 QQ	503	9330
South Jennings—		
Stanolind, Adams 1	96	8664
Valentine—		
Markley and Mohawk, Dousson 2	301	6994
Avoyelles Parish—		
Richardson, Haas Inv. 1-B, nw Eola	*	9400
Jefferson Davis Parish—		
Vendome, Whitney-Coulon 1, Crown Point	*	10,600
LaFourche Parish—		
Humble, Caldwell Sugars 1, East Labadieville	*	12,600

Michigan

Company, Well and Location	Init. Prod. Bbls.	Depth
Allegan County—		
Huffman Dr. Co., Thompson 1, sw sw ne 1-1n-14w	*	1411
Seaboard Oil, Gietzen 1, ne se sw 12-4n-12w	*	1888
Union Oil Co., Frary 1, se ne ne 18-4n-12w	*	1630
Howard E. Fowler, Stankey 1, ce ne se 4-3n-14w	200	1412
Fisher-McCall, Inc., Kalmink 1, c se ne 9-3n-14w	60	1532
Clapsaddle & Harris, Smith 1, sw nw nw 36-3n-14w	*	1566
Bell-Marks, Inc., Spahn 1, ne sw sw 9-3n-13w	*	1784
Keyson Oil Co., Steele 1, nw nw sw 32-2n-11w	8	1621
Gordon & Basin, Weber 4, sw ne nw 10-4n-13w	21	1620
Union Oil Co., Frujinick 1, se ne ne 26-4n-13w	*	1752
Clare County—		
Taggart Bros., State 28, c nw se 8-19n-6w	*	1790
Isabella County—		
Cities Service, Ernest 1, se se nw 28-16n-3w	135	3706
Kent County—		
R. E. King, Walsh 1, se ne ne 31-7n-12w	20	1890
Smith Pet. Co., Livingstone 3, sw ne se 32-7n-12w	1200	1839
Michigan Devonian, Jelsma 1, sw se 14-6n-12w	20	1904
Midland County—		
Pure Oil Co., Bond-Root 21, c s ne ne 3-13n-2w	126	3438
Monroe County—		
Skinner & Shiffman, Bragg 1, sw sw sw 29-6s-6e	20	2147
Osceola County—		
Rowmor & Hughes, Vallad 1, c n ne ne 25-20n-7w	*	3901
Ottawa County—		
Gulf Ref. Co., Bronkema 2, se nw nw 23-7n-13w	30	1886
Ed. Strom, Nickol 2, sw nw ne 23-7n-13w	40	1867
J. C. Newell, Masterson 1, nw ne 26-7n-13w	125	1869
Swanson Consolidated, Lautenbach 1, sw se ne 28-7n-13w	12	1938
Daily Crude Oil Co., Allen 1, nw nw ne 31-8n-13w	*	1992
Van Buren County—		
John McLean, Pierce 1, sw nw se 21-2s-16w	*	1025

Mississippi

Company, Well and Location	Init. Prod. Bbls.	Depth
Tallahatchie County (Wildcat)—		
Gulf Ref. Co., T. P. Carson A-1, 2-21n-1w	*	6004
Yazoo County (Tinsley Dome)—		
Hassie Hunt, A. G. Johnson 4, 14-10n-3w	500	4917
Whigate & Sanford, Robertson 1, 20-10n-2w	*	5350

Montana

Company, Well and Location	Init. Prod. Bbls.	Depth
Glacier County (Cut Bank)—		
Glacier Prod. Co., Corrigeaux 4-G, cse sw 28-33n-5w	157	3066

[*Continued on next page*]

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth
Santa Rita O. & G. Co., Rasmusson 3, cnw se 32-33n-5w	45	2985
Texas Co., Tweedy 4, cse nw 21-35n-6w	15	2957
Toole County (Kevin-Sunburst)—		
Coolidge & Coolidge, State 6-A, csw nw nw 36-36n-2w	75	1535
State 7-A, nw sw nw 36-36n-2w	*	1535

New Mexico

Eddy County (Wildcat)—		
L. E. Elliott et al, Elliott-Shelby 1, sec 24-18s-29e	*	3860
Eddy County—		
Mac T. Anderson et al, Root 2, c nw sw 12-17s-29e	141	2592
Banner Oil Co., Miller 2, se sw ne 4-18s-29e	45	2860
Continental & S. P. Yates, Brainard 3-3, sec ne 3-18s-29e	240	2670
Lea County (Arrowhead)—		
Continental, State 5-B-1, c sw se 1-22s-36e	60	3789
Lea County (Maljamar)—		
Geo. Williams & Weier Dr. Co., Miller 1, se nw sw 23-17s-32e	192	4017
Lea County (North Lynch)—		
Texas Co., Elliott 1, c se sw 11-20s-34e	*	3861
Lea County (Vacuum)—		
Magnolia, State 4-J, c ne ne 22-17s-34e	155	4720
State-Bridges 64, c sw ne 14-17s-34e	401	4664

New York

Allegany County—		
Ebenezer Oil Co., Herrick farm, Alma	7	1289
Shaner & Co., Welch farm, Bolivar	4	1420
Moore & Repp, Hatch farm, Wirt	5	1066
Richardson Oil Corp., Towner farm, Scio	5	1120
Bradley Prod. Corp., Monder farm, Alma	5	1245
Itsquago Oil Corp., Pike farm, Alma	9	1390
Marsh Oil Co., Withey farm, Bolivar	6	1348
H. W. Patterson, Milks farm, Scio	5	912
Smith & Gray, Gray farm, Genesee	3	1340
Water Intake Wells		
Forest Oil Co., Ackerman farm, Bolivar	...	1160
R. G. Moore et al, Curtiss farm, Bolivar	...	1210
R. B. Moore 6, Daniels farm, Bolivar	...	1287
Vossler & Short et al, Quick farm, Alma	...	1560
Andrews Bros., Minnum farm, Alma	...	1420
L. & M. Oil Co., Bush farm, Alma	...	1227
Dick Oil Co., Cameron farm, Bolivar	...	1325
L. H. Thornton et al, Fassett farm, Willing	...	1048
Hopkins, Short Bros. Clark farm, Willing	...	1061
Messer Oil Corp., Courtney Hollow farm, Genesee	...	1342
Courtney Hollow farm, Genesee	...	1327
Sloan & Zook McDivitt farm, Bolivar	...	1260

Ohio

Athens County—		
C. P. Bowman, Rogaski 6	¶.08	1718
Ohio Fuel Gas Co., Barnhill 1	¶.73	1263
Sunday Creek Coal Co. 182	*	1023
Wallace et al, Hill 1	¶.23	1431
Bern O. & G. Co., McCune 1	*	1053
Guernsey County—		
Geo. E. Jewell et al, Robinson 2	5	480
Jewell Gas Co., Linn 1	*	1440
Watson 1	*	1391
Wilson 1	*	1324
Jefferson County—		
H. Kallermier, Alban & Kallermier 1	1	1385
L. L. Sapp, Saltzman Hrs 1	1	1000
Licking County—		
Hoover Bros. et al, Tobes 1	5	3010
A. Willet et al, Plyler 1	¶.47	708
Wayne Moore et al, Allen 1	¶.07	2321
Wm. Stricker et al, Fisk 2	*	590
G. T. Shrider et al, Porter 5	*	583
Lorain County—		
Wiser Oil Co., Szucs 3	15	250
Denham 3	*	251
C. A. McMillen, Smith 1	¶.25	2301
Medina County—		
Edson & Son, Brant 13	40	490
Auble 6	10	353
Auble 7	*	396
Shanner & Kyser, Mathews 1	30	482
Defusto & Sawinger, Allis 2	5	413
J. Rubin et al, Snowball 1	*	3290
Morgan County—		
North Oil Co., Allen 3	12	447
W. S. Harris, Worthington 2	¶.40	993
Muskingum County—		
Wilking Co., Wilson 1	5	3295
Noble County—		
Skinner Co., Hughes 1	1	1583
Wilbur Keith, Doebereinger 1	1	1230
Perry County—		
Hoover Oil Co., Adcock 1	¶.20	944
Stark County—		
East Ohio Gas Co., Shoemaker 1	*	4570
Washington County—		
Rockey Oil Co., Stack 1	5	1506
Auderson Co., Francis 1	¶.10	1324

Oklahoma

Caddo County—		
Pace, McClaren 1, ne nw se 6-5n-9w	55	3385
Carter County—		
Jones Oil Co., Sullivan 4, sw nw se 36-4s-2w	25	2480
Shell, Tubbi 17, csl sw nw nw 24-4s-3w (OTD 1145)	10	1204
Choctaw County—		
Ross, Fee 1, sec nw 21-7s-15e	*	1950
Comanche County—		
S. & S. Oil Co., School Land 2, sw se sw 20-2n-10w	*	1060
Creek County—		
Chapman et al, Brooks 4, swc 26-15n-10e	81	3104
McAdams et al, McMann "A" 1, se ne se 36-17n-9e	43	2762
Hughes County—		
Phillips, Beeker 1, ne nw sw 8-5n-10e (OTD 5639)	35	4494
Shemwell 1, c se nw 8-5n-10e	¶21	4595
Jackson County—		
Gulf, Herber 3, sec 9-1n-20w (OTD 1433)	76	1470
Kerbow et al, Alexander 2, swc se 10-10n-20w	44	1574
Vaughn, Stokes 8, ne nw sw 11-1n-20w (OTD 1368)	*	1460
Kingfisher County—		
Olson et al, Geis 1, c ne sw 15-18n-9w (OTD 8507)	*	9404
Kiowa County—		
Jackson Bros. et al, Hinton 1, sec 1-7n-17w	*	2764
Lincoln County—		
Blackgold, Cofer 1, ne sw sw 22-14n-6e	*	3138
Summit et al, Griggs 1, nw ne nw 7-15n-5e	*	3534
Kemp et al, Matthews 1, ne se nw 26-17n-6e	¶4	1700
Logan County—		
Ohio, Knight 1, se ne sw 12-17n-1w (OTD 5119)	16	5060
McIntosh County—		
Phillips, Blankenship 1, c sw nw 33-10n-13e	*	3911
Okfuskee County—		
Terry et al, Parkinson 1, sw sw nw ne 18-10n-11e	*	2400
Suppes, Alexander 6, sw sw nw ne 35-11n-9e	25	1489
Mid-Continent, Scott 1, se nw se 24-12n-8e (OTD 4025)	*	3870
Okmulgee—		
Newman, Farmer 1, sec nw 17-14n-11e	*	2456
Shock et al, Douglass 1, ne nw se 17-14n-11e	108	2394
Armstrong, Rentle 25, nw nw se nw 3-14n-14e	20	1630
Dow, Johnson 1-A, s½ nw sw 12-14n-14e	¶0.25	600
Selby, Flint 15, s½ se nw 26-14n-14e	15	1085
Pawnee County—		
Johnson O. & Ref. Co., Rich 2, ne se nw 28-20n-9e	10	2102
Payne County—		
Devonian, Scott 1-A, sec ne 19-18n-5e	*	4041
Pontotoc County—		
Kendell, Gray 1, nw se sw 25-5n-4e	45	2663
Harwell, Summers 2, ne se se 26-5n-4e	170	2611
Bogel-Joels, Taylor 2, nw se se 29-5n-5e (OTD 2319)	15	2550
Pottawatomie County—		
Berkey et al, Willsie 1, nw se sw 29-7n-4e	*	4554
Kerlyn, Ogee 1, sw se se 8-7n-5e	183	3265
Sinclair Prairie, Nadash 6, ne nw sw 29-7n-5e (OTD 4135)	17	4191
Alma, Crouch 1, nw se nw 24-9n-4e	75	4430
Seminole County—		
Culver & Shepherd, Burton-Swan "D-A" 2, sw se sw 3-5n-5e	17	2906
Terry et al, Swan 4, se nw se 33-7n-6e	152	2882
Thompson, Harriman "C" 4, ne sw se 33-7n-6e	178	2884
Winona, Jackson 1, sw se ne 18-7n-8e	360	4195
Helmerich & Payne, Davis 1, ne sw ne 30-7n-8e (OTD 3052)	24	4090
I. T. I. O., Work 2, sw nw sw 24-8n-6e (OTD 4439)	8	4402
Stephens County—		
Pace, Fee 19, se nec nw 28-2s-7w	*	1343

Pennsylvania

BRADFORD DISTRICT

Starr & Wingrove, Potter	3	....
Messer Oil Corp., Redfield	2	....
Stuchel & Freeman, Freeman	2	....
Pine Run Oil Co., Bing 130-1-2-3-4-6	4	....
Bradford Tr. Co., 17 wells	17	....
Forest Oil Corp.	1	....
Forest Oil Corp.	4	....
Niagara Oil Corp., 3 wells	3	....
Water Intake Wells		
Mix Creek Oil Co., fee	...	....
Pine Run Oil Co., Bing 130-1-2-3-4-6	...	....
Forest Oil Corp.	...	....
Forest Pet. Corp.	...	....
Niagara Oil Corp., 6 wells	...	....

MIDDLE DISTRICT

W. D. & F. T. Barry, Given & Barry	6	....
Water Intake Well		
Cities Service, Hamilton	...	....

BUTLER-ARMSTRONG DISTRICT

Peoples Nat. Gas Co., Rearick	¶	....
Edward McKinney, McKinney	4	....

SOUTHWEST PENNSYLVANIA

Indiana County—		
T. W. Phillips G. & O. Co., Brandon 1	¶1.40	1483
Smolar 1	*	3475
Washington County—		
Foley & Williams, Clark 1	¶.05	1365

East Texas

Joiner Area—		
Ohio Oil, Burton Bros. 32 (254.44-ac)	1200	3713
Roosth & Genecov, Curby 5	35	3665
Kilgore Area—		
Constntin & Co. (was Groneman et al), Mayfield 9 (35-ac)	900	3705
Gross & H. Shulman, Walker-Sun 2 (40-ac)	240	3727
J. C. Hawkins et al (was Southport), Horton-Shell 4 (103-ac)	15	3533
Longview Area—		
B. F. Phillips et al, Cannon 3, blk 15	960	3587
Everett 3, blk 15	1200	3658
Stanolind, Custer 13 (75.3-ac)	1500	3554
Angelina County (Wildcats)—		
Arkansas Fuel Oil Co., Carter-Kelly 1	*	4015
K. L. McHenry et al, Reddittt-Fairchild 1	*	3009
Franklin County (Talco)—		
Humble, Yount 1	625	4289
Titus County (Talco)—		
R. E. Moore et al, Cecil 1	578	4321
Harrison County (Wildcat)—		
Fohs Oil Co., Monte Hall 1, O.H.P. Boden sur	*	4702
Marion County (Rodessa-Jefferson)—		
Holcomb & Thomasson, Madine A-1, A. D. S. Coy sur	100	6118

North Texas

Archer County (Hull-Silk)—		
J. A. Chapman & McFarlin, Wilson 7-D	1224	4356
Deep Oil Dev. Co., Carson 3	1824	4375
Deep Oil & C. B. Christie, Finley 2	1272	4323
Helmerich-Payne & Blackwell O. & G. Co., Wilson 14	720	4380
King Oil Co.-Phillips Pet., Wilson 7-E	60	3831
W. H. Peckham et al, Krebs 2	935	4394
Pet. Producers Co., Johnson 2-B	1440	4352
Louis Sikes et al, Anderson 9	825	4376
Archer County—		
Bridwell Oil Co., Green 2-B	96	1149
G. J. Brown et al, Ford 1-A	2	1800
Cochran & Cain, Little 4-B	44	1321
Little 5-B	64	1316
Bert Ligon et al, Little 7-B (pb to 570)	35	1387
Baylor County (Wildcat)—		
Baldwin & Reed Dr. Co., Robertson 1	*	2994
Clay County—		
R. R. Kolp et al, Magnolia 5	8	772
J. A. Morgan et al, Brannon 1	*	395
Clay County (Wildcats)—		
L. T. Burns et al, Tom Watson 1	*	5207
Roy I. Carter et al, Harrison 1	*	1406
Cooke County (Walnut Bend)—		
Magnolia, Ramsey 6	236	4760
Cooke County—		
Dickson Oil Co., Lynn 4	48	1127
Lausen & Dixon, Fette 3	35	1149
Cottle County (Wildcat)—		
J. H. Burns et al, Moss 1	*	1823
Jack County—		
W. H. Mahon et al, Ellison 1	*	408
Target Dr. Co., Kuykendal 2	459	3238

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth
Montague County (Nocona)—		
Carnation Pet. Co., MK&T Ry 1, (7.3-ac)	1400	4407
Rogers & Rogers, Burnett 1-B	1432	5365
Stanolind, Davis 3	*	5858
Sunray & Ramsey Pet. Corp., Stambough 1	1624	5285
Wichita County—		
C. L. Apple et al, George 1	*	1587
B. C. E. Develop Co., George 2	*	1475
C. E. Beavers et al, Perkins 1	†	1450
Texas Co., Honaker 75	†	570
Wichita County (K-M-A)—		
Barrow-Grace & Wood, Birk 4-A	680	4127
Bishop Oil Co., Waggoner Bros. 2-A	528	3807
Blanco Oil Co.-Al Buchanan, Thom 3	1088	3840
Continental, Waggoner Bros. 6-B	488	3960
C. O. Davis et al, Will Burnett 2	456	4137
Fain-McGaha Oil Corp., Griffin 18-B	944	3830
Tide Water et al, Ferguson 19	792	3836
Pettit 25	800	3835
Wilbarger County—		
Lawson & Simpson, Waggoner Est. 4-W	*	2477
McMahon & Peterson, Waggoner Est. 18-B	10	1901
Wilbarger County (Sigler Deep)—		
Davis Oil Corp., Waggoner-Daniel 1-A (dd)	528	3650
Young County—		
J. P. Doss et al, Morris 1	*	564
J. E. McDonald et al, Atchley 1	*	1005
Mitchell & Ard, Dunagan 9	15	940

Texas Panhandle

Carson County—		
Shell Oil, Cooper 11-C	394	3090
Skelly Oil, Schafer 109	495	3075
Gray County—		
Adams & McGahay, Morse 4	93	2733
Gayden Oil Co., Archer 4	299	3246
King Oil Co., Horner 14	322	3267
Texas Co., Williams 24	309	2935
Hutchinson County—		
Gulf Oil Corp., Pitcher 13	172	3195
Harvester Oil Co., Haile 7	660	3056
C. V. Herndon et al, Whittenburg 1	219	2972
McIlroy Oil Co., Haile 14	26	3045
Phillips Pet. Perkins 26	147	2991
Stanolind, Watkins 13-B	291	2925
Texas Co., Pond 28	580	3040
Potter County (Wildcat)—		
Canadian River Gas Co., Amarillo 1	*	5018
Wheeler County—		
Skelly Oil, Derrick 17	207	2437

West Texas

Crane County (Dune)—		
Great Western Producers, University-Texaco 5-A	489	3300
Crane County (Sand Hills)—		
Humble, Tubb 1-D	2391	4427
Crockett County (World-Powell)—		
F. B. Black et al, Powell 2-C	888	2612
Ector County (Foster)—		
A. & M. Oil Co., Johnson 6	381	4288
I.T.I.O. Co., Johnson 1-D	1616	4151
Lee Dr. Co., Johnson 11	465	4302
Ohio Oil, Johnson 1	394	4184
Schermerhorn Oil Corp., Johnson-Amerada 10	746	4192
Stanolind, Cowden 41-B	220	4200
Witcher 45	1794	4122
Sunray Oil Co., Johnson 2-F	583	4154
Ector County (Goldsmith)—		
Gulf, Goldsmith 286	220	4213
Goldsmith 291	1634	4245
Phillips Pet.-Pure, Cowden 89	1249	4157
Cowden 91	2957	4158
Cowden 92	1620	4159
Ector County (Jordan)—		
Cities Service, University 3-C	1037	3561
Gulf, University 2-N	7732	3575
Ector County (North Cowden)—		
Atlantic Ref. Co., Johnson 1-G	625	4195
Barnsdall Oil Co., Smith 9	1274	4212
Gaines County (Cedar Lake)—		
Stanolind, Rayner 2	764	4800
Gaines County (Seminole)—		
Amerada Pet. Corp., Riley 3	860	5260
Atlantic Ref. Co., Riley 5-C	905	5321
Gaines County (Wasson)—		
Continental & Amon Carter, Wasson 5-44	1126	5050
Continental, Wasson 3-A-50	1347	5040
Hockley County (Slaughter)—		
Western States Gaso. Corp., Frazier 2	1458	5016
Pecos County (Pecos Valley)—		
A. C. Fritz et al, Iowa Realty-Redmond 4	210	1635
Pecos County (White-Baker)—		
Cardinal Oil Co., White-Baker 4-A-45	80	1704
Scurry County (Sharon)—		
Coffield & Guthrie, Snyder First Nat'l Bank 4	125	2440
Mudge Oil Co., Holcomb 2	105	2472
Ward County—		
Gulf, Estes 134	994	2680
Mid-Continent Pet. Corp., Sealy-Magnolia 7	2023	2986
Sid Richardson et al, University-Sun 3-B	400	2735
Yoakum County (Wasson)—		
Anderson-Prichard, Willard-Spearman 6	1705	5157
Argo Oil Corp., Comer 4-C	1817	5175
Amon Carter-Continental, Willard 5-38	1419	5082
Continental Oil Co., Kendrick 5-868	1010	5110
Kendrick 5-867	1717	5117
Carl B. King et al, Brand 2	668	5042
Plymouth Oil Co., Bennett 4-B	363	5245
Shell Oil, Baumgart 14-A	1480	5190
Baumgart 9-E	1765	5180
T. P. Coal & Oil Co., Hearne 2	1181	5247

West Central Texas

Coleman County—		
Roark et al, Dibrell 1	*	1700
Erath County (Wildcat)—		
Jackson et al, Taylor 1	*	3395
Jones County—		
Maury Hughes, Tr., Martin 3	*	1962
Stephens County—		
Jones Dr. Co. T. R. Land Trust 1	42	4018
W. B. Omohundro et al, Dance 1	165	3665
Pitzer-West & Brazos-Young Corp., Compton 1 (pb to 3536 ft)	20	3980
Taylor County (Wildcat)—		
T. S. Hose et al, Bond 1	*	4720

Texas Gulf Coast

Anahuac—		
Humble, Clark 24	707	7080
Barbers Hill—		
D. B. McDaniel, Wilburn 7	458	4575
Batson—		
B. G. Dowell, Milhome 10-122	20	1426
Bay City—		
Atlantic, Steinmyer 1	210	9268
Blue Ridge—		
S. S. Rainer, Davidson 1 (wo)	3	3855
Caplen—		
Sun, Zinn & Foreman 5	153	7174
Cedar Point—		
Standard of Texas, State 53	144	6005
Clear Lake—		
Humble, Fee C-42	120	5908
Clinton—		
Stanolind, Candelari 1 (wo)	*	3820
Conroe—		
Sun, So. Tex. Dev. Co. 1 (wo)	13	5181
Dickinson—		
Pure, Stewart 6	128	8321
Pan-American, Moore 1	¶	8542
Atlantic, Roberts 4	75	8054
Humble, Leith 2	102	8830
Esperson—		
General Crude, Davis 20	¶38.0	7105
Moores Bluff 2	71	4129
Fairbanks—		
Amerada, White 17	120	6841
Fannett—		
Gulf, Burrell 3 (wo)	63	5388
Friendswood—		
Humble, Beamer 35	480	6042
Hardin—		
Humble, Cessna 1	408	7627
High Island—		
Stanolind, Smith B-20	360	5977
Hillje—		
Titantic, Kountze 1	¶	4070
Humble—		
Morris Rauch, Horn 5	8	1010
Joe's Lake—		
Republic, Republic & Houston 36	477	7700
League City—		
Phillips, Parr 1	*	9338
Lovell Lake—		
Humble, Jefferson Land Co. 11	139	7786
Steinhagen 5-B	148	7792
Mackey—		
Magnolia, Borden 2	*	6559
Manvel—		
•Texas, H.O.F.A. 35	528	5670
Martha—		
Stanolind, Garrow 1	50	8088
North Thompsons—		
Gulf, Scanlan 1	448	7903
Old Ocean—		
Stanolind, Giles 2	No Est.	10,970
Sun, Campbell 5	348	10,540
Pickett Ridge—		
B. G. Von Roeder, Wilbeck 2	69	4788
Texas, Pierce Est. B-37	122	4793
Pierce Junction—		
Cogswell & Deering, Hermann Hosp. 2 (wo)	184	3885
Rio Bravo, Settegast A-23	83	4012
Port Neches—		
Phillips, Stark 1	548	7015
Segno—		
Humble, Kirby Lumber Co. B-X-23	317	8180
South Cotton Lake—		
Salt Dome, Williams 4	153	6513
South Thompsons—		
Humble, Davis 30	284	5410
Quintana, Wolters 14	615	5443
West Beaumont—		
Stanolind, Sarge 9	198	5370
Keith & Dowlen 9	85	5390
Withers—		
R. Y. Smith, Halamicek 1 (wo)	21	5543
Texas, Broussard 24	100	5534
Pierce B-45	115	5545
Matagorda County—		
Barnsdall, Stoddard 1, Wilson Creek area	432	10,298
San Jacinto County—		
Harrison & Abercrombie, Dixon 1, Sheperd area	*	8870
Tyler County—		
Dick Schwab, Fletcher 1, Spurger area	*	7710

South Texas

CORPUS CHRISTI DISTRICT

Bee County—		
Sultex Oil Co., Clark Wood 1 (WC) J. C. Wood Subd., blk 18	*	6275
Hidalgo County—		
Royal O. & G. Corp., Victorino Garza Chapa 1-B (Samfordyce)	650	4138
Jackson County—		
Humble, Vanderbilt State B-3 (West Ranch)	700	5668
Magnolia, Schuech 1 (West Ranch)	1100	5768
West 60-A (West Ranch)	1200	5110
West 82-A (West Ranch)	1100	5129
Renwar Oil Corp., Phillipi 2 (West Ranch)	1250	5776
Shell, Schuech 1 (West Ranch)	1300	5759
Superior Oil Corp., Drummond 6 (West Ranch)	1750	5776
Jim Wells County—		
H. H. Howell, San Antonio Joint Stock Land Bank 1 (WC), sec 9	*	6546
Lewis Prod. Co., Florence 1 (West Alfred)	450	4684
M. M. Miller & Sons, Gallagher 1 (WC), blk 21, opened Gallagher field	350	5624
Rowan & Hope, Inc., Robert Adams 4 (Alfred)	500	4690
Karnes County—		
Jack W. Frazier, Cochran 1 (WC), blk 10	*	3051
Live Oak County—		
Alvin Brauer, Bonham (Gayle et al) 2 (White Creek)	150	1546
Bonham (Gayle et al) 3 (White Creek)	165	1570
Nueces County—		
Sinclair-Prairie, Texas 2 (977) (E. White Point)	500	5640
Texas 3 (977) (E. White Point)	375	5640
Texon Dr. Co., Elliff 5 (Agua Dulce)	*	7001
Wellington Oil Co., Dugger 6 (S. Clara Driscoll)	250	5410
Refugio County—		
Hewit & Dougherty, Rooke A-4 (La Rosa)	*	8020
Quintana Pet. Corp., Heard 36 (Tomoconnor)	1500	5925
San Patricio County—		
Baytex Oil Corp., Hoffman-O'Laughlin 1 (McCampbell)	450	7258
Humble, Belvey 6 (Taft)	500	5642
Phillips, Schmidt A-1 (Midway)	450	5385
Texon Royalty Co., Roots 1 (WC) Sec. 26	¶3.0	5820
Victoria County—		
W. V. Hardin et al, Buckert 2 (Victoria)	500	3041

LAREDO DISTRICT

Duval County—		
Adelon Oil Corp., Tinney 1-A (Piedras Pintas)	*	515
Cox & Hamon and Gorman-Yoakam, Hoffman 2 (109) (Tarancahuas)	130	2081
Hoffman 4 (109) (Tarancahuas)	144	2035
Magnolia, D.C.R.C. 5 (132) (Cedro Hill)	15	1455
M. M. Miller & Sons, Fee (M. M. Miller) 23 (Longhorn)	450	4897
Jim Hogg County—		
Humble, Atwood 14 (Colorado)	550	3096
McMullen County—		
Morris Dr. Co., Meier 3 (South Calliham)	*	1010
Schroeder 1 (South Calliham)	*	987
Starr County—		
A. L. Bone et al, Garcia 3 (WC), por 71	*	398
W. R. Davis Co., Davenport 2-A (Rincon)	500	4317
Slick Est. A-1 (Rincon)	*	2226
Slick Est. 9-A (Rincon)	450	4259
Slick Est. 27-B (Rincon)	375	4317
Sun Oil, Lehr 1 (WC) sur 513	40	5542
Webb County—		
Glenda Oil Co., Bruni Est. 1 (WC), blk 11	*	1182
Locke Purnell, J. H. Kirkpatrick 2 (WC), sec 57	*	2521
Transwestern Oil, Bruni Est. 2 (Glen)	1250	2176

[*Continued on next page*]

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth
Zapata County—		
Dulup Oil Co., Trevino 43 (Escobas)	41	1381
Hawkeye Pet. Corp., Primitivo Uribe 1 (WC), sh 5	*	3208
The Texas Co., Measles et al 134 (Escobas)	¶0.33	1450
SAN ANTONIO DISTRICT		
Bastrop County—		
C. R. Franklin, McDonald 1 (WC), M. Baker sur	*	2230
Bexar County—		
Fred Beatty et al, Avant 1 (WC), sur 133	*	820
Caldwell County—		
Ralph R. Ogden, Talley 9 (Dale)	60	2255
Guadalupe County—		
Magnolia, McKean 17 (Luling)	95	2120
P. G. Rouse, Neumann 4 (Elm Creek)	*	2170
Texas Co., Willie 9 (Darst Creek)	310	2596
Medina County—		
G. R. & L. J. Dorsey, Robinson 1 (WC), sec 9	*	425
Travis County—		
R. R. Janner, Cherico 1 (WC), Santiago Del Valle gr	*	658
Williamson County—		
James F. Criswell, Tr., Baker 1 (WC), T. W. Metcalf sur	*	517
Magnolia, Stiles 51 (Thrall)	*	805
W. C. McGlothin, Swenson 1 (WC), sur 24	*	2310
Red Bank Oil Co., Dollinger 1 (Thrall)	*	645

West Virginia

Company, Well and Location	Init. Prod. Bbls.	Depth
Braxton County—		
Pitts. & W. Va. Gas Co., Fear 2	¶.46	1867
Howell 3	¶.13	2102
Fisher 2	*	1200
Clay County—		
Virginian G. & O. Corp., Brown et al V-1284	5	1841
Gilmer County—		
McCall Dr. Co., Furr & Turner 2	20	1777
Bowser O. & G. Co., Simmons & Heckert 1	*	1700
Kanawha County—		
Godfrey L. Cabot, Putnam Co. 4	¶12.25	5210
Columbian Carbon Co., King 1	¶1.22	5046
Pleasants County—		
Jewett Gas Co., Jewett Hrs. 1	¶.08	1940
Upshur County—		
Pitts. & W. Va., Gas Co., Brady 7753	*	4233

Wyoming

Company, Well and Location	Init. Prod. Bbls.	Depth
Carbon County (Foote Creek)—		
Mackinnie Oil & Dr. Co., U.P.-Horne Bros. 2, ne se ne 21-22n-78w	*	1118
Sweetwater County (Lost Soldier)—		
Sinclair-Wyoming Oil Co., Lost Soldier 93-A, sw nw nw 11-26n-90w	90	2020

*Failures; †Junked; ¶Million cu. ft. gas.

WILDCAT REPORT
New Starts and Completions

ARKANSAS

COMPLETION

Clark County—Coker Oil Co.'s Cabe 4, sec 8-10-20, abnd 486 ft.

CALIFORNIA

FIRST REPORTS

Merced County—Don Pedro Oil Co.'s No. 1, sec 9-6-9, lcn, Newman area.

Sacramento County—Bishop Oil Co.'s Willmar 1, sec 21-4-3, rig, Rio Vista area.

COMPLETIONS

Kern County—Sleeper Ridge Oil Co.'s No. 1, sec 15-29-28, abnd 2517 ft, Kern River area. Otis Hoyt's Union 1, sec 6-30-22, td 2625 ft, 225 bbls fluid, 20 percent sand, sanded up, McKittrick area. Bolling Oil Co.'s Quinn 1, sec 14-25-27, granite 2435 ft, Vedder 2155 ft, abnd 2460 ft, Richgrove area.

KANSAS

FIRST REPORTS

Cowley County—Sage, Murfin et al's Carlson 1, cwl sw sw 21-30-4e, dr.

Douglas County—Forrester et al's Altenbernd 1, csl nw 35-12-20e, sd 79 ft.

Rooks County—Trees Oil Co.'s Richards 1, cn½ nw sw 31-10-18w, lcn.

COMPLETIONS

Ellsworth County—Moore et al's Lille 1, cs½ se ne 30-16-10w, 2½ mi w Stoltenberg pool, Sooy 3372 ft, Arbuckle 3371 ft, hfw 3402 ft, abnd 3406 ft.

Kingman County—W. H. Gaddis et al's Shannon 1-A, ce½ se sw 11-27-10w, 3 mi ne Cunningham pool, Mississippi 4013 ft, Kinderhook 4102 ft, Viola 4293 ft, spotted saturation 4301-15 ft, abnd 4315 ft.

McPherson County—Aladdin Pet. Corp.'s Bitikofer 1, cn½ ne nw 1-20-1w, e of Ritz-Canton pool, Mississippi 2885-88 ft, gas 2907 ft, pay 2911-13 ft, td 2916 ft, 6400 gals acid, 49 bbls 29-gr.

Rice County—Pulse et al's Baker 1, csl sw sw 33-20-6w, ¾ mi w Welch pool, Mississippi 3424 ft, base Mississippi 3492 ft, abnd 3508 ft. C. L. Carlock et al's Conrad 1, cw½ sw ne 15-20-6w, w of N. Bornholdt pool, Mississippi 3308-14 ft, abnd 3390 ft.

Rooks County—Cities Service Oil Co.'s Hansen 1, sec nw 15-6s-19w, w of Faubin pool, Lansing 3343 ft, Arbuckle 3635 ft, abnd 3700 ft.

NORTH LOUISIANA

FIRST REPORTS

Caddo Parish—J. C. Conner's Williams A-1, se ne 3-15n-15w, mat. Noyes B. Livingston et al's Sentell 1, sec 35-20n-14w, mat.

LaSalle Parish—F. W. Conn's Herring 1, sec 1-8n-3e, mat.

Sabine Parish—Shell's Pickering Lbr. Co. 1, cne sw 30-4n-12w, lcn.

Webster Parish—W. C. Feazel's Tillman 1, nw ne 11-17n-9w, mat.

COMPLETION

Madison Parish—H. L. Hunt's Ayer Timber Co. 1, cnw sw 18-15n-10e, elev 75 ft, Wilcox 2721 ft, abnd 3486 ft.

SOUTH LOUISIANA

FIRST REPORTS

Calcasieu Parish—Burford & Bateman's Louisiana Farm & Livestock Co. 1, ne sec 7-11s-9w, lcn.

Iberia Parish—Midstates' Schwing 1, sec 56-12s-7e, lcn.

Jefferson Parish—Texas' Bayou Peter 1, Delta Farms area, nw sec 26-16s-22e, lcn.

Orleans Parish—W. T. Burton's State 4, Lake Pontchartrain, 7000 ft sw lighthouse Point Aux Herbes, in lake, lcn.

COMPLETIONS

Avoyelles Parish—Sid Richardson's Haas Investment Co. 1-B, sec 42-1s-2e, 1 mi nw prod Eola, Cane River 7850 ft, Cane River Fossil Bone 8924 ft, Wilcox 8560 ft, abnd 9400 ft.

Jefferson Davis Parish—Vendome's Whitney-Coulon 1, Crown Point area, abnd 10,600 ft.

LaFourche Parish—Humble's Caldwell Sugars 1, East Labadieville area, abnd 12,600 ft.

MICHIGAN

FIRST REPORTS

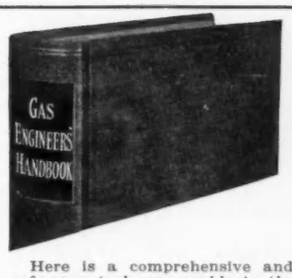
Calhoun County—D. P. Hynd's Moore 1, sw se se 17-4s-8w, dr.

Oceana County—Welsh Oil Co.'s Lacompte 1, nw ne se 35-13n-18w, rig.

Ottawa County—Smith Pet. Co.'s Velthouse 1, sw se sw 5-6n-14w, rig. Clapsaddle & Harris' Holland City 1, ne sw ne 29-5n-15w, rig.

COMPLETIONS

Allegan County—Huffman Dr. Co.'s Thompson 1, sw sw ne 1-1n-14w, Traverse 1351 ft, abnd 1411 ft. Seaboard Oil Co.'s Gletzen 1, ne se sw 12-4n-12w, Traverse 1875 ft, abnd 1888 ft. Union Oil Co.'s Frary 1, se ne ne 18-4n-12w, Traverse 1618 ft, abnd 1630 ft. Bell-Marks, Inc.'s Spahn 1, ne sw sw 9-3n-13w,



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Clare County—Taggart Bros., Inc.'s State 28, 8-19n-6w, abnd 1790 ft.

Osceola County—Rowmor & Hughes' Vallad 1, c n½ ne ne 25-20n-7w, Dundee 3811 ft, abnd 3901 ft.

Ottawa County—Daily Crude Oil Co.'s Allen 1, nw nw ne 31-8n-13w, Traverse 1874 ft, abnd 1992 ft.

MISSISSIPPI

FIRST REPORTS

Carroll County—John Woodley's (Shreveport) Hemphill 1, c se nw 27-19n-2e, mat.

Jones County—T. N. Smith's (San Antonio) Hollifield 1, nw sw nw 20-8n-12w, mat.

Kemper County—R. M. Crabb's Land 1, nw ne 12-10n-14e, dk.

Warren County—W. O. Allen's Unknown 1, c se se 5-7n-4w, bldg roads.

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Wayne County—Otto Graham et al's Unknown 1, sec 28-8n-6w, dk.

COMPLETION

Tallahatchie County—Gulf Ref. Co.'s Carson A-1, c ne 2-21n-1w, elev 145 ft, chalk 2570 ft, Eutaw 3275 ft, electric log, abnd 6004 ft, igneous.

NEBRASKA

FIRST REPORT

Richardson County—C. L. Carlock et al's Holt 1, c sw sw 35-2n-16e, rur.

NEW MEXICO

COMPLETIONS

Chaves County—Farrar, Jones et al's Samples 1, sec 1-7s-27e, abnd 98 ft.

Eddy County—L. E. Elliott et al's Elliott-Shelby 1, sec 24-18s-29e, elev 3446 ft, salt 325-1010 ft, Yates 1095 ft, lime 3010 ft, abnd hfw (sul) 3510-3860 ft.

OKLAHOMA

FIRST REPORTS

Muskogee County—Garrett's Rinehart 1, sec 15-13n-17e, rig.

Okfuskee County—Reese Dr. Co. et al's Berryman 1, nw sw sw 36-11n-8e, rig. Texas Co.'s Cowan 1, swc 5-11n-10e, dr.

Payne County—Summit Dr. Co. et al's Arnold 1, nw ne nw 8-19n-2e, rur.

Pontotoc County—Kerlyn's Chism 1, nw se se 24-5n-6e, dr.

COMPLETIONS

Logan County—Kerlyn's Chitwood 1, nec sw 15-16n-4w, 2½ mi s Crescent pool, Wilcox 6578 ft, abnd 6698 ft.

Payne County—Cities Service Oil Co.'s Sinnett 1, sec sw 14-20n-4e, 10 mi n Ingalls area, Layton 2610-60 ft, Oswego 3095 ft, Prue 3300 ft, Bartlesville 3490 ft, Mississippi 3725 ft, Woodford 3885 ft, Misener 3912-15 ft, Dense 3916 ft, Dolomite 3938 ft, Wilcox 3958 ft, abnd 3970 ft.

Pottawatomie County—Berry Bros.' Evans 1, sec ne 17-10n-5e, old well retested, 3 mi n King pool, Hunton 4585 ft, td 4792 ft, perf Hunton 4577-4602 ft, acid 1000 gals, hfw, abnd.

Seminole County—F. B. Murta et al's Harber 1, cw½ ne se 4-10n-6e, 2 mi w Keokuk pool, Checkerboard 2070 ft, Oswego 2800 ft, Calvin 2830 ft, Caney 3855 ft, Mayes 4080 ft, Woodford 4215 ft, Misener 4243 ft, hfw 4358½ ft, Hunton 4259 ft, abnd 4269½ ft.

EAST TEXAS

FIRST REPORTS

Bowie County—Shell's Wall 1, J. Downey sur, 2½ mi nw Maud, rig for 6700-ft test.

Delta County—Partin & Skinner's Lomax 1, T. Jones sur, 2½ mi se Cooper, rig.

Kaufman County—Bateman Q DeArmand's Gen'l American Life 1, J. Baker sur, sp.

Upshur County—A. C. McGahey et al's Turner 1, A. Butler sur, sp and sd.

COMPLETIONS

Angelina County—Arkansas Fuel Oil Co.'s Carter-Kelly 1, T&NO sur 4, 2½ mi se Loy, elev 133 ft, Crockett 1730 ft, Sparta 1820 ft, Weches 2145 ft, Carrizo 2572 ft, abnd in Wilcox 4015 ft. K. L. McHenry et al's Redditt-Fairchild 1, T&NO sur 7, elev 192 ft, Crockett 1526 ft, Sparta 1968 ft, Weches 2225 ft, Carrizo 2575 ft, abnd 3000 ft.

WEST TEXAS

FIRST REPORTS

Brewster County—J. W. Quinn and R. C. McCarter's Stumberg 1, nwc se MK&T sec 70, blk G, lcn.

Stonewall County—Shell's Patterson 1, swc nw H&TC sec 393, blk D, lcn for 6000-ft test.

Ward County—Gulf Oil's O'Brien 141, se ne nw sec 39, blk F, G&MMB&A sur, rig.

NORTH TEXAS

FIRST REPORT

Jack County—B. C. Gilmore et al's Bloodworth 1-B, J. F. Franklin sur A-1527, dr 465 ft.

COMPLETIONS

Baylor County—Baldwin & Reed Dr. Co.'s Robertson 1, blk 10, sur A-280, abnd 2994 ft.

Clay County—L. T. Burns et al's Watson 1, ne sw TE&L sec 2639, abnd in Ordovician 5207 ft. Roy I. Carter et al's Harrison 1, sw blk 150, Byers sur, abnd 1406 ft. J. A. Morgan et al's Brannon 1, sec 62, Bacon sur, abnd 395 ft.

Cottle County—J. H. Burns et al's Moss 1-a, near c sw sec 5, blk L, A. Forsythe sur, abnd 1823 ft.

SOUTH TEXAS

FIRST REPORTS

Bastrop County—Marts & Beaven, Inc.'s Edmonson 1, 40-ac tr, Martha Barker sur, 3 mi w Cedar Creek, lcn. Ogden & Riddle's Riddle 2-B, 400-ac lse, James B. Blalock sur, Riddle area, lcn.

Brooks County—Sun's Boedecker-State 1-A, sec 16, CCSD & RGNG R.R. Co. sur, 5 mi n Encino, 10,000-ac blk, lcn.

Colorado County—R. O. Lowrance's Ackley 1, 329-ac tr, B.S. & F. sur, Sheridan area, lcn.

Duval County—G. W. Basom, Tr.'s Adami 1, J. H. Gibson sur 341, lcn.

Hidalgo County—Eugene J. Liberty's Doss 1, s 323.02-ac of 791.12-ac of tr 126, pors 39 & 40, 3 mi n Samfordyce fld, prep mi.

Jackson County—W. Stewart Boyle's Bennview Dev. Co. 1, tr 35, second subd of J. M. Bennett ranch, Valentin Garcia gr, Ab-24. Shell farmout, 1 mi sw West Ranch fld, lcn.

Jim Wells County—Henshaw Bros.' Allen 1, tr 3, W. H. Bode subd, Casa Blanca gr, ¾ mi nw Sandia, 2 mi n Wade City fld, sp.

LaSalle County—H. R. Cullen et al's Wildenthal, Jr., 1, Oleander Heights addn of Cotulla townsite, western portion of Cotulla, lcn.

Travis County—E. R. Janner's Larremore 1, 80-ac tr, Santiago del Valle gr, se Austin, lcn.

Webb County—Mayfair Oil Corp. (W. H. Holland et al's) Lopez Est. 1, sec 139, dr 1200 ft. Locke Purnell's Kirkpatrick 3, sec 27, CCSD & RGNG sur, blk 1, prep mo.

COMPLETIONS

Bastrop County—C. R. Franklin's McDonald 1, 12-ac lse, 100-ac tr, M. Baker sur, 2 mi n Cedar Creek townsite, abnd 2230 ft.

Bee County—Sultex Oil Co.'s Wood 1, begin nw/cor blk 18, J. C. Wood subd, J. McGeehan sur, 7-in csg 6126 ft, sw sd 4122-26 ft, sd go 5671-84 ft, sd 6023-42 ft, abnd 6275 ft.

Bexar County—Fred Beatty et al's Avant 1, 160-ac lse, John Dunn sur 133, 18 mi sw San Antonio, abnd 820 ft.

Jim Wells County—H. H. Howell's San Antonio Joint Stock Land Bank 1, blk 14, sec 9, Scott's re-subd of Benton Pasture Antonio Longoria, M. Lopez gr, 5 mi s Bentonville, perf 5651-57 ft, tested sw, abnd 6546 ft. M. M. Miller & Sons' Gallagher 1, blk 21, J. H. Gallagher subd, Casa Blanca gr, 4 mi se Sandia, td 5624 ft, comp 146 bbls through 5/32-in ch, perf 5187-95 ft with 12 shots & 5197-5207 ft with 12 shots, opens Gallagher fld.

Karnes County—Jack W. Frazier's Cochran 1, blk 10, David O. McConnel sur, abnd 3051 ft.

Medina County—G. R. and L. J. Dorsey's Robinson 1, 200-ac tr, Sec 9, John George sur, 8 mi nw Devine, abnd 425 ft.

San Patricio County—Texon Royalty Co.'s Roots 1, lot 4, sec 26, fourth addn to Taft Farm Lands, 160-ac tr, td 5820 ft, comp as gas well, ⅛-in ch, perf 4822-26 ft, extends East Plymouth fld 1 mi sw.

Starr County—A. L. Bone et al's Garcia 3, sh 7-B, por 71, 12 mi n Roma, abnd 398 ft. Sun's Lehr 1, CCSD & RGNG sur 513, sec 513, 8 mi sw Sun fld, td 5542 ft, comp on pump est 50 bbls, 75 percent o, rest w, perf 4127-37 ft with 50 shots.

Travis County—R. R. Janner's Cherico 1, 91.71 acs in Santiago Del Valle gr, 9 mi se Austin, abnd 658 ft (depth in question).

Webb County—Glenda Oil Co.'s Bruni Est. 1, blk 11, Eugene Garner subd of Reynosa Pasture, J. V. Borrego gr, 18 mi se Laredo, abnd 1182 ft. Locke Purnell's Kirkpatrick 2, sec 57, CCSD & RGNG R.R. Co. sur, blk 1, 22 mi ne Bruni, 5 mi nw Lopez fld, abnd 2521 ft.

Williamson County—James F. Criswell, Tr.'s Baker 1, 80-ac tr, T. W. Metcalf sur, 6 mi se Liberty Hill, abnd 517 ft. W. C. McGlothin's Swenson 1, Williams Byerly sur 24, 5 mi e Coupland, abnd 2310 ft.

Zapata County—Hawkeye Pet. Corp.'s Primitivo Uribe 1, sh 5, partition 6, San Ygnacio subd, Borrego gr, 16 mi ne Ignacio, abnd 3208 ft.

TEXAS GULF COAST

FIRST REPORT

Wharton County—T. M. Neal's Fee 1, 2½ mi n Lane City, lcn.

COMPLETIONS

Matagorda County—Barnsdall's Stoddard 1, Wilson Creek prospect, flowed 432 barrels 51-gr distillate daily from 10,298 feet through drill stem.

San Jacinto County—Harrison & Abercrombie's Dixon 1, Sheperd area, Hockleyensis 4570 ft, Diboll 4571 ft, Cockfield 4720 ft, Cook Mountain 6380 ft, Wilcox 8120 ft, abnd 8870 ft.

Tyler County—Dick Schwab's Fletcher Lumber Co. 1, Spurger area, E. Thompson sur, Hockleyensis 3876 ft, Operculina 4546 ft, Cockfield 4556 ft, abnd 7710 ft.

Washington County—Standard of Kansas' Kamas 1, n flank Brenham Dome, 1½ mi se Wesley, temp abnd 5039 ft.

TEXAS PANHANDLE

COMPLETION

Potter County—Canadian River Gas Co.'s Amarillo 1, sec 167, blk 2, elec 3551 ft, abnd 5018 ft.

WYOMING

FIRST REPORT

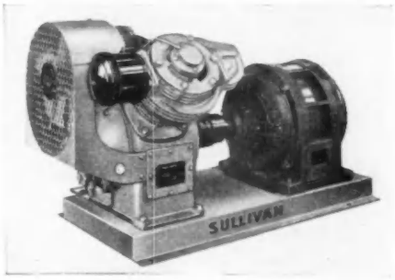
Weston County—Pierre LaFleiche's Dober 1, ne ne ne 21-46n-63w, Six-Mile Basin structure, 6 miles south Osage fld and 10 miles w Newcastle, set 150 ft 10¾-in sur csg, woc.

NOTES FOR THE Equipment Buyer and User

Compressor
SULLIVAN MACHINERY COMPANY

A small stationary compressor, designed for small industries and for standby service and described as compact, light-weight and smooth-running, has been announced by Sullivan Machinery Company, Michigan City, Indiana.

The unit, designated WL-70, is a two-cylinder, single-stage model with



Sullivan's Model WL-70 Compressor

complete air cooling, built-in aftercooler, force-feed lubrication, heavy-duty ball main bearings, low-lift valves and air filter silencers.

The compressor is available in five sizes, ranging from 96 to 233 cubic feet-per-minute displacement, 15 to 30 horsepower, and air pressures from 30 to 125 pounds. It is supplied as a complete motor-driven unit on steel sub-base, direct-connected or V-belt driven, or may be had less sub-base with V-belt sheave or flat belt pulley.

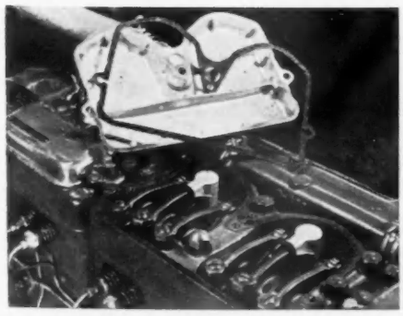
Gaskets
VICTOR MANUFACTURING & GASKET COMPANY

A gasket embodying in combination properties of asbestos and neoprene has been introduced by Victor Manufacturing & Gasket Company, Detroit. In manufacture, the gaskets are blanked from asbestos sheet material and then coated with a neoprene cement developed especially to increase its resistance to passage of gases and liquids.

Two types are available. As originally made, the sheet has considerable compressibility, and gaskets made from it are adapted to joints where relatively light flange pressure is applied, as between light metal stampings. They are applied where heretofore treated paper, cork or similar materials have been used. They are designed for stability of dimensions and resistance to effects of relatively high temperatures that cause other materials to develop leaks.

A second type of gasket is obtained by compressing the asbestos-neoprene combination. They are designed for use where heavier flange pressures may be applied, as between machined surfaces.

In the presence of oils, motor fuels and water, the gaskets are described as non-corrosive to steel, copper, brass, aluminum and magnesium alloys. In bending tests, they were found to bend 180 degrees in each direction over a radius equal to three times the thickness of the gasket without cracking. The same results were obtained after oven-aging for 600 hours at 170° F.

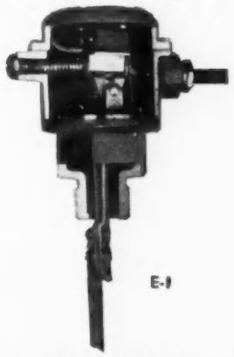


Asbestos-Neoprene Gasket on Valve Rocker Cover of a Diesel Engine.

Flow Switch
McDONNELL & MILLER

A new flow switch employing a positive mechanical action to start a pump, an alarm or any electrical device when flow through a pipe starts or stops has been announced by McDonnell & Miller, Wrigley Building, Chicago.

Designated Model E-1, it consists essentially of a long flexible paddle which is extended into the pipe. When the paddle is forced back by the flow in



McDonnell & Miller's Flow Switch

the pipe, it closes an electric circuit and thus starts whatever machinery or valves the switch controls. When flow through the pipe stops, the paddle returns to normal position, breaking the electric circuit. Reverse-acting switches are available, breaking the electric circuit when flow starts and completing it when flow stops.

The paddle will pass stones and debris, and will not interfere with high rate flows. It can be cut to any length to fit every size of pipe. The paddle arm is connected to the electric switch through a flexible metal bellows to keep the switch waterproof. Tension of the paddle can be varied by an adjusting spring. Top cover of the switch is removable to provide access to all moving parts.

Single-Cylinder Engines
FAIRBANKS, MORSE & COMPANY

A redesigned line of single-cylinder slow-speed Type Z engines, available in four sizes with cylinder displacements of 118, 208, 346, and 503 cubic inches, has been announced by Fairbanks-Morse & Company, 600 South Michigan Avenue, Chicago. The new line, designated as Type ZC engines, maintains outstanding features of the old Type Z engine and, in addition, incorporates advantages applicable today.

Features include adaptation of a vapor-phase cooling system to the engine, use of renewable valve seats, oil-impregnated bronze-bushed valve guides, roller bearings, controlled splash lubrication and internally mounted governor operating in a bath of oil.

In the vapor-phase cooling system, a condensing radiator is mounted on top of the cylinder. Steam generated from the water expands into a special ex-

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NOTES FOR THE Equipment Buyer and User

pansion chamber and enters the radiator. Air forced through the radiator by the cooling fan condenses this steam to water, which is returned to the system. The arrangement is designed to hold the temperature of the engine constant regardless of load or outside temperature. A vent prevents formation of pressure or vacuum in the radiator.

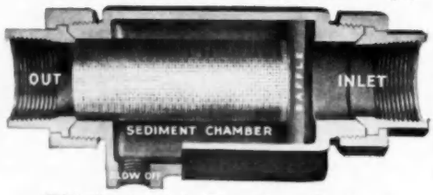
Two heavy flywheels are designed to store sufficient energy to carry through the two peaks which occur every stroke.

The engine is oil tight. The cast-iron crankcase cover has large gasket surfaces, and roller bearings are sealed against oil leakage. Any tendency for oil to leak out is counteracted by carrying the crankcase under a slight vacuum through the use of a small breather valve operated by atmospheric pressure.

An enclosed governor is designed to permit wide speed range with close regulation. Piston speeds and rotative speeds are maintained at a low level to insure long life and minimum maintenance expense. Every part is readily accessible. The engine is available in engineered combinations with electric generators, pumps of all types, and compressors.

Strainer
WRIGHT-AUSTIN COMPANY

A new strainer, designated Easyclean, for use on steam, oil and compressed air lines to power and industrial equipment and designed to prolong the life of steam traps,



Wright-Austin's Easyclean Strainer

pressure reducing valves and similar units, has been announced by Wright-Austin Company, 315 West Woodbridge Street, Detroit.

The unit is connected as a union in a pipe line, and has a pocket designed to collect dirt and scale before reaching the screen. The screen is perforated sheet brass having 400 1/32-inch holes per square inch, and the body is cast semi-steel designed for working pressures up to 250 pounds.

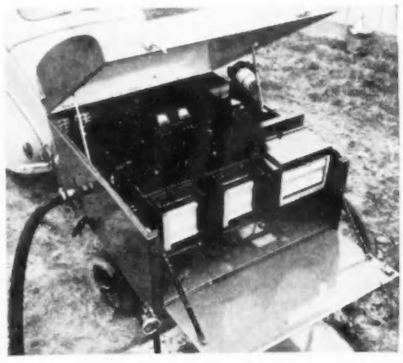
It is available in ½-, ¾-, 1-, 1¼-, 1½- and 2-inch sizes.

Drilling Mud Analysis
STANOLIND OIL & GAS COMPANY

An instrument developed for continual analysis of drilling mud has been devised by Stanolind Oil & Gas Company's research engineering laboratory at Tulsa. The equipment, mounted on a special trailer for portability, records its findings to form a continuous record. The equipment has recently been used on leases of the firm in Kansas.

In operation, a portion of the stream of drilling mud is continuously diverted from the mud return at the well-head, and after passing through the instrument, the mud is returned to the mud pit. As the mud passes through the instrument, it is successively analyzed for salt content, hydrogen ion concentration, gas content and oil content.

A record of the values is recorded on two strip charts. A larger chart indicates and records the rate of bit penetration and the volume of mud circulated by the pumps in gallons per minute. The instrument is driven by a



Stanolind's Instrument for Mud Analysis

dual, 60-cycle, alternating current generating plant, a part of the equipment.

The equipment is designed for controlling the characteristics of the mud and for detecting oil and gas strata which would not otherwise be found.

Continuous in recording and automatic in operation, the unit eliminates the probability of human error in computations, and well information supplemental to electric or other survey and core analysis is made available for more efficient producing operation. It is designed to pass up lubricating oils introduced into the mud stream, recording only the presence of crude oil.

Members of the company's production research engineering department particularly active in building the instrument were R. W. Stuart, drilling mud engineer; Harry Glenn, expert in electronics, and H. J. EnDean, specialist in instrument design.

Diesels

Chicago Pneumatic Tool Company, 6 East 44 Street, New York, has published the second edition of its Bulletin No. 768 on Types 8 and 9 Diesel engines for continuous heavy-duty stationary service. Features stated for the engines include low fuel consumption, wearing parts enclosed, automatic lubrication, low maintenance, instant starting, and conversion to a gas engine with a few changes.

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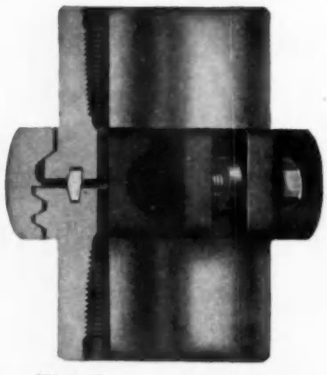

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NOTES FOR THE Equipment Buyer and User

Decarbonator

COCHRANE CORPORATION

A decarbonator designed to remove corrosive gases, including carbon dioxide and hydrogen sulphide, from the water in cold condition without regard to other soluble gases, such as oxygen, has been announced by Cochrane Corporation, 17 Street & Allegheny Avenue, Philadelphia.

The decarbonator is designed to remove carbon dioxide from the effluent of carbonaceous hydrogen zeolite softeners and from water supplies treated with acid. Where soluble iron and carbon dioxide are present in the natural

Cochrane Corporation's Decarbonator

water supply, the decarbonator removes the dissolved carbon dioxide and by aeration oxidizes the soluble iron so that it may be filtered out and the water made fit for use.

Constructed mainly of cypress or redwood, it is equipped with a rotary blower and fitted with corrosion resistant metals.

Welder

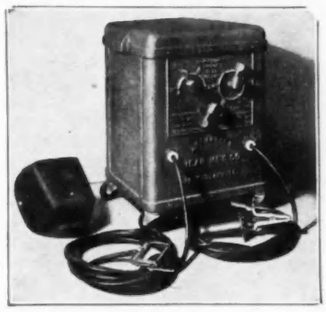
BEAR MANUFACTURING COMPANY

A new welder, designated AC Arcmaster, featuring a multiple-coil transformer design to provide an even flow of current to the electrode, and safety construction to provide complete protection of the operator, has been announced by Bear Manufacturing Company, Rock Island, Illinois.

Four-coil transformer construction with reactance control is designed to level the peaks and valleys of power variation and to make possible a uniform and constant welding voltage with calibrated amperage from lowest to highest output.

Either ground or welding leads can be connected with any of the input wires without completing an electrical circuit, while a circuit on the output cannot be completed until actual welding takes place. There is no connection between the input and the output, providing operating safety.

Transformer laminations are of silicon steel with over-size core and wire



Bear Manufacturing's AC Arcmaster

to withstand heat created under constant use, to prevent insulation breakdown and to avoid complete burnouts.

Made of heavy cast aluminum designed for rapid heat dissipation, the unit is furnished in three models with ranges of 10 to 200 amperes, 10 to 250 amperes, and 10 to 300 amperes. All models have 220 60-cycle voltages, and each unit includes 20 feet of ground cable, 20 feet of electrode cable, head shield, rod holder and an assortment of rods. All models have been approved by Underwriters' Laboratories.

Lathe Tools

Gisholt Machine Company, Madison, Wisconsin, has issued a catalog covering its line of standard tools for turret lathes. Each tool is illustrated, and the text matter has been written to include information and dimensions to enable the tool engineer to select the correct type of tool for particular work.

Safety Shoes

Lehigh Safety Shoe Company, Allentown, Pennsylvania, has issued Catalog No. 9 describing its line of safety shoes. In two parts, the first describes and illustrates more than 60 different styles of leather and rubber safety footwear. The second section is a buyer's guide which explains safety shoe features and construction in non-technical terms, and tells which should be specified for longest wear and maximum foot protection under various industrial conditions.

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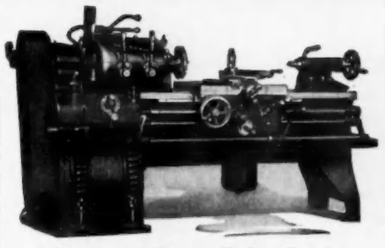

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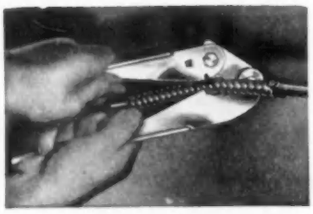
NOTES FOR THE Equipment Buyer and User

Armor Cutter

IDEAL COMMUTATOR DRESSER COMPANY

A pocket-size cutter to take BX cable, two or three wire, No. 12 or No. 14, has been announced by Ideal Commutator Dresser Company, 1531 Park Avenue, Sycamore, Illinois. The tool is described as cutting quickly and cleanly without injury to wire insulation, and as cutting anywhere along length of cable for opening into outlets or switch boxes. The cutting blade is removable for sharpening.



Ideal Commutator's BX Armor Cutter

New Plant Occupied by Elastic Stop Nut

Elastic Stop Nut Corporation has announced the moving of its general offices from Elizabeth, New Jersey, to its new plant at 2332 Vauxhall Road, Union, New Jersey, a suburb of Newark. Transfer of manufacturing equipment, which has been in progress for several weeks, has been completed.

Union Wire Rope Names R. B. Boand Texas District Salesman

Union Wire Rope Corporation, Kansas City, Missouri, has announced the appointment of Robert B. Boand as district salesman in Texas, with headquarters at Houston.

A graduate of Missouri University with an A.B. degree in arts & science, and business, Boand has been engaged in office sales work since 1937. He is a factory-trained man.

Industrial Glass Thermometers

The Bristol Company, Waterbury, Connecticut, has issued Bulletin No. 524 on its line of industrial glass-stem thermometers. Illustrations and descriptions are given on sizes, dimensions, bulbs, ranges, finish and the mercury column.

Pipeline Equipment

Caterpillar Tractor Company, Peoria, Illinois, has issued a folder, "Along the Pipeline Front," illustrating use of its track-type tractors and Diesel engines in pipe line construction.

Vapor Recovery Systems Company Opens Tulsa Branch Office

The Vapor Recovery Systems Company, Compton, California, has announced the opening of branch engineering and sales office at 533 Mayo Building, Tulsa, under the supervision of Alfred Katzenberg.

Katzenberg, a graduate mechanical engineer of Mississippi State University has had years of experience in the field, in New York and in other cities.

Dan Hiskey Joins Dearborn Chemical Company Research Staff

Dearborn Chemical Company, Chicago, has announced the appointment of Dan Hiskey to its research staff to specialize in pipe-line coatings and wrappers.

A graduate of the University of Southern California, he has been with Southern California Gas Company for the past 10 years. In his new position, he will cooperate with Dearborn Chemical Company's staff in laboratory research on special problems and will devote considerable time in improvement of pipe coating and wrapping application methods.

Castings Data

Meehanite Research Institute of America, 311 Ross Street, Pittsburgh, has issued a wheel chart containing complete engineering data on various types of Meehanite castings available to industry. The chart quickly reveals the physical properties of general engineering castings as well as heat, corrosion and wear-resisting types.

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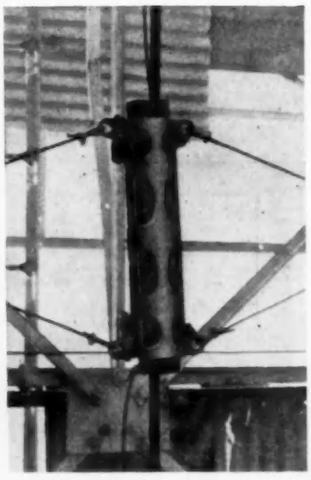

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... SEES FARTHER

ATLAS ENGINEERS examine drawings for production economy; chemists and metallurgists, behind test tubes and microscopes, explore into the raw bar steel; others peer through pyrometers into glowing furnaces, watch heat registering meters, scan hardness testing dials, check surface measurements with finely calibrated instruments.

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All shapes and sizes to 500 lbs.
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Squeaks from the Bull Wheel

Long Ordeal

Prosecuting Attorney: "I will now, your honor, read a list of the previous convictions of the prisoner."

Prisoner: "Your honor, may I be allowed to sit down?"

Training

What's the idea of poking the broom in the baby's face?

I just wanted to get him used to kissing grandpa.

Dilemma

Sandy bought two tickets to a raffle and won a $1,500 car.

His friends rushed up to his house to congratulate him, but found him looking miserable.

"Why, mon, what's the matter wi' ye?"

"It's that second ticket. Why I ever bought it I canna imagine."

Suiting Action

"Would you like me to show you an infallible method of getting rid of a bore?"

"Oh, don't put yourself out."

Verbosity

Your wife, sir, seems to be subject to fits of verbosity.

Good heavens, doctor, I never thought she had anything the matter with her except she talked too much!

With Color

Now, students, describe a gumdrop.

A marshmallow in technicolor.

Tsk, Tsk

Thanks for the hug.

The pressure was mine.

A Moral Here

As the boy grew from infancy he never spoke a word and his parents raised him as a deaf mute.

One day the father was bent over at his work and did not notice that he was in the path of an enraged bull.

"Look out, Pa," the son shouted. "Here comes the bull."

The father ran to safety and expressed his joy that his son had found his speech.

"Well, Pa, I just ain't had nothing to say before."

Painful Reminder

Don't you enjoy those slow motion pictures of horse races?

No, they remind me too much of the horses I always bet on.

Flood Gauge

A salesman was rattling along a country road in eastern Tennessee, when he came to a ford. A darky was standing by the little stream where some ducks were swimming. The salesman said: "Can I get through the creek with this car all right?" "Yes, suh, drive right through." The salesman, thus encouraged, drove into the stream, only to find that the water was so deep that it flooded his engine. He and his companion had to get out into the stream with the cold water up to their armpits and push the car to the bank. The salesman turned to the negro and said angrily: "What do you mean by telling me that I could drive through that creek?" "Well, boss, I nevuh knew dat water was so deep. It only comes half-way up on my ducks!"

What "We"?

Communist spellbinder orating: "Yes, and there'll come a day when we'll all ride around with chauffeurs."

To which a timid colored man queried: "And will chauffeurs have chauffeurs too, Boss?"

Hot Springs Conversation

How do you do? . . . I'm aching from neuritis.

Glad to meetcha. I'm Jones from Chicago.

Wrong Number!

"Did anyone call while I was out?"

"Yes, ma'am, Lord Marlboro called."

"Well, well, at last we're being recognized. What did he say?"

"Nothin, ma'am. It was the wrong number."

Not Impressed

I told her that each hour I spent with her was like a pearl to me.

And did that impress her?

No, she told me to quit stringing her.

Once There Was a Scotchman

Sandy was papering his house and his neighbor Rab dropped in to see him. He noticed that Sandy was putting the wall paper on with thumb tacks instead of paste.

What are ye daein' that for, Sandy?

Weel, said Sandy, I dinna expect tae live here a' my life.

Joke on Him

Mike, you should pull your shades down when you kiss your wife. I saw you last night.

Gwan wid ye, Jock, the joke's on you. I wasn't home last night.

Needed Patience

Do you know I haven't spoken to my wife for over a month?

I wouldn't worry over that, old man —your turn is bound to come eventually.

Prepared

Two mourning dresses on this bill! But we haven't lost anyone.

Of course not dear, but you were so sick last month.

Not So Long

How long have you been married, Jim?

Oh, for about two pouting spells and a hysterical attack.

"Revival" Meeting

As two brokers passed the theatre out stepped one of those ravishing, alluring Follies beauties.

"I feel like taking her out again," whispered one.

"Have you had her out?"

"No—but once before I felt like it."

On Time, Maybe

I've got a surprise for you—two tickets for the theater.

Fine, I'll start dressing at once.

Yes, do. The show is for tomorrow night.

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GOTT Water Cans are the practical way to keep drinking water cool for long periods, protected from impurities and always handy to the job. Snug fitting large removable top, strongly built to withstand rough usage. GOTT Water Coolers have extra large covers and a handy non-leaking push button faucet. Your Supply Store has them, get one today! . . . . . .
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